Table 1

Step 1 - Criteria for Technical Assessment

Needs Assessment

Regulatory Minimum Setbacks

- Property line
- Buildings
- Wetlands
- Floodplains
- Surface water
- Public well
- Private well
- Vernal pools

Design Parameters

- Percolation rate
- Depth to groundwater
- Depth to bedrock

Solutions Assessment

Preliminary Technology Evaluation

- On-site – management programs
- Clusters – available land
- De-centralized – available land
- Centralized In-town – capacity
- Centralized Regional – capacity

Table 2

Step 2 - Criteria for Needs Areas and Disposal Site Evaluation

Needs Assessment

"Non-Technical" Criteria

- Aesthetics (mounded septic systems, etc.)
- Community impacts and neighborhood character
- Archeological and historical impacts
- Proximity to abutters and human sensitive receptors

Solutions Assessment

Site Evaluation

- Percolation rate (soils type)
- Depth to groundwater
- Depth to bedrock
- Sensitive human receptors
- Sensitive environmental receptors
- Well impacts
- Proximity to needs areas
- Availability of land
- Cost
- Land uses
- Proximity to archeological and historical resources

Attachments:

Figure 1: Wastewater Assessment Process

Figure 2: Minimum Service Areas

Figure 3: Maximum Service Areas

Figure 4: Potential Disposal Locations

Figure 1: Wastewater Assessment Process

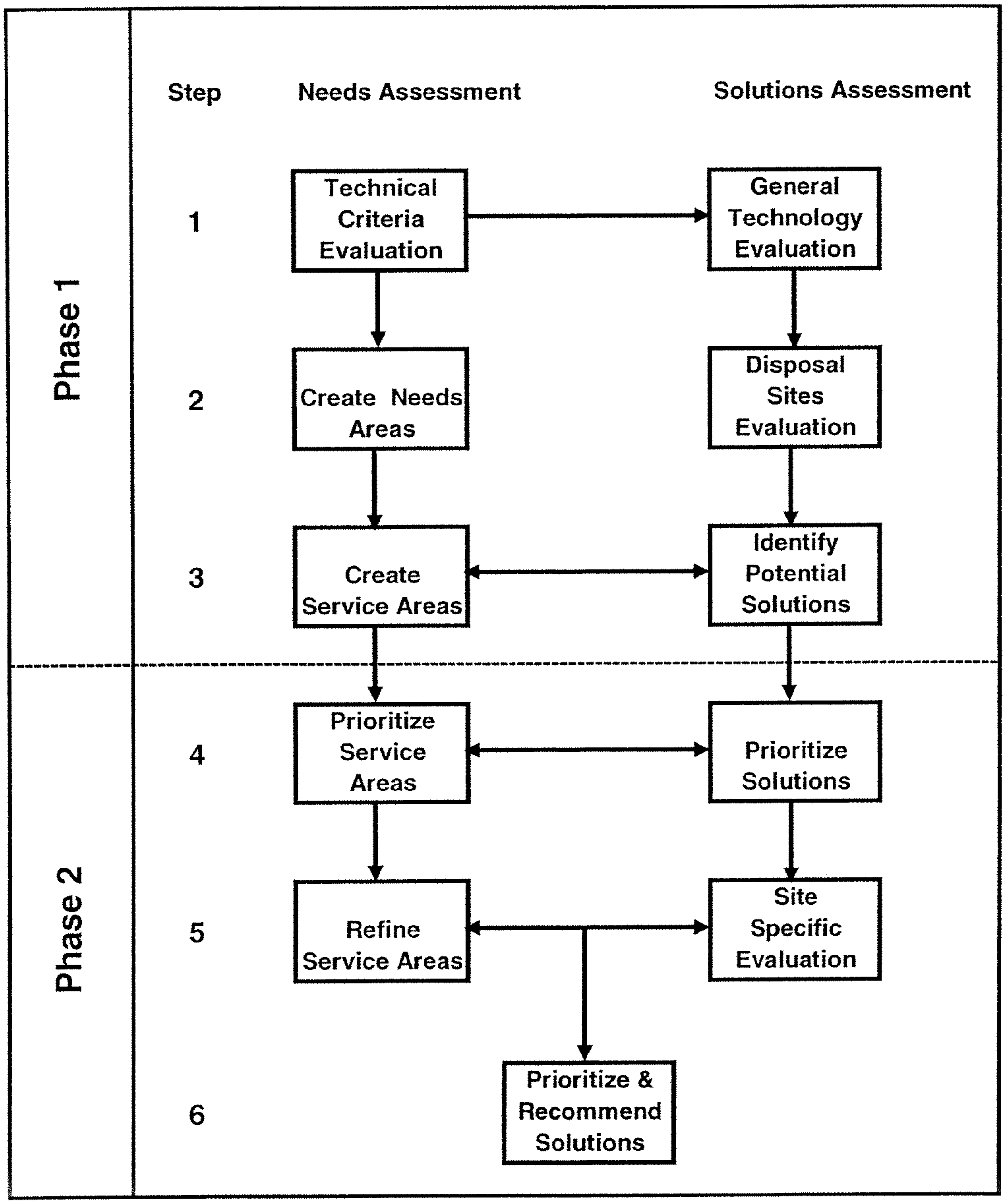
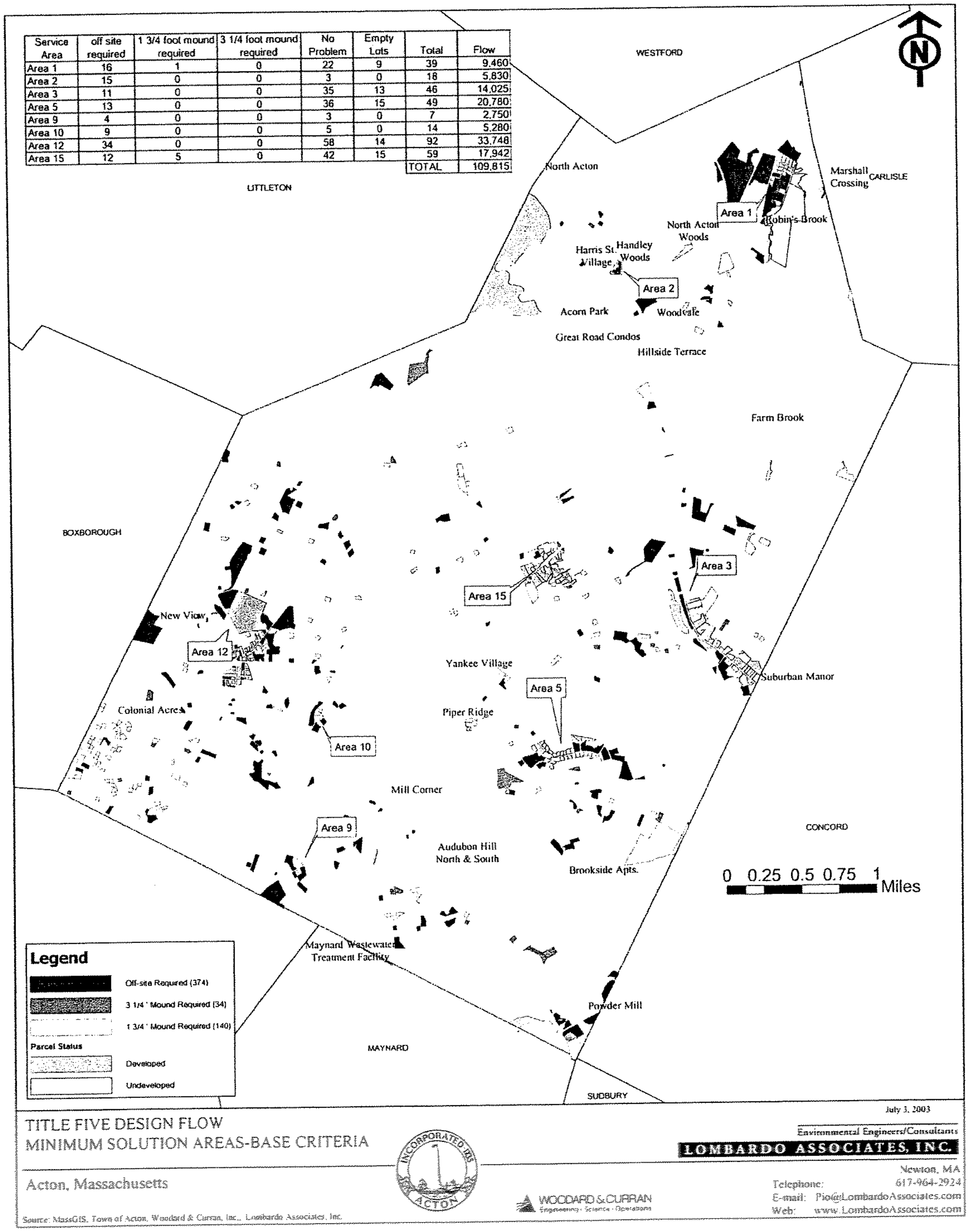
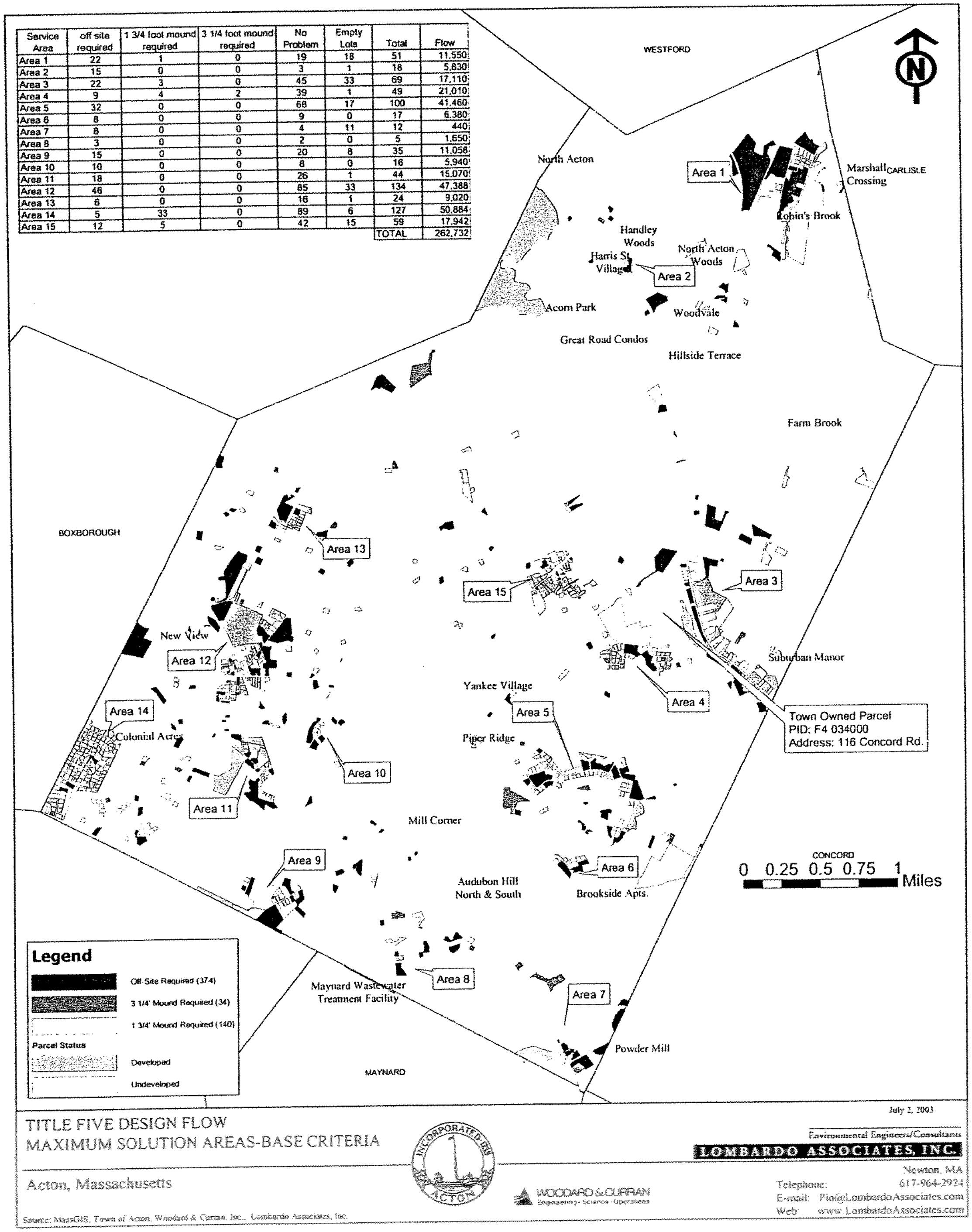


Figure 2: Minimum Service Areas



Service Area	off site required	1 3/4 foot mound required	3 1/4 foot mound required	No Problem	Empty Lots	Total	Flow
Area 1	16	1	0	22	9	39	9,460
Area 2	15	0	0	3	0	18	5,830
Area 3	11	0	0	35	13	46	14,025
Area 5	13	0	0	36	15	49	20,780
Area 9	4	0	0	3	0	7	2,750
Area 10	9	0	0	5	0	14	5,280
Area 12	34	0	0	58	14	92	33,748
Area 15	12	5	0	42	15	59	17,942
						TOTAL	109,815

Figure 3: Maximum Service Areas



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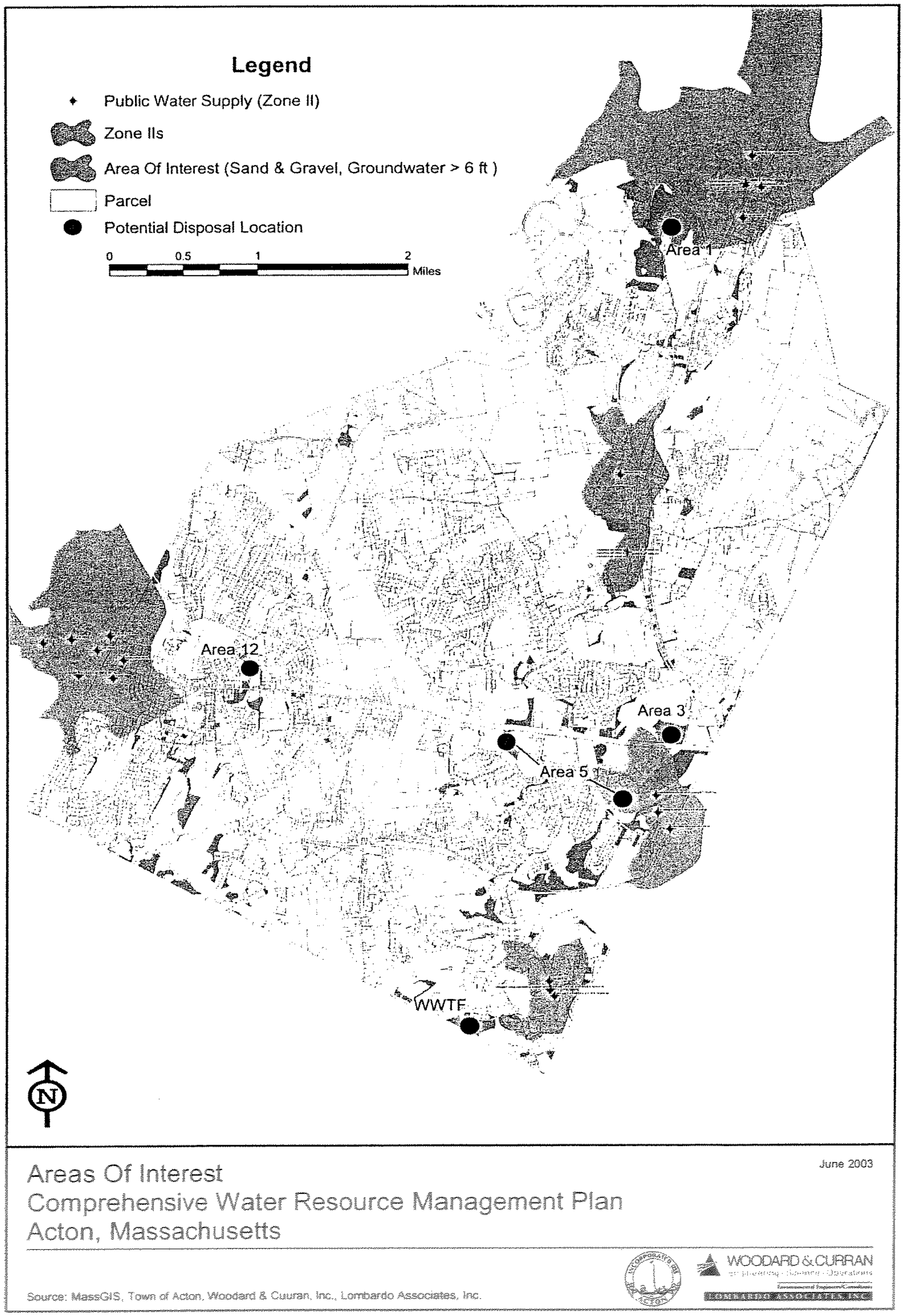
Area 3	22	3	0	45	33	69	17,110
Area 4	9	4	2	39	1	49	21,010
Area 5	32	0	0	68	17	100	41,460
Area 6	8	0	0	9	0	17	6,380
Area 7	8	0	0	4	11	12	440
Area 8	3	0	0	2	0	5	1,650
Area 9	15	0	0	20	8	35	11,058
Area 10	10	0	0	6	0	16	5,940
Area 11	18	0	0	26	1	44	15,070
Area 12	46	0	0	85	33	134	47,388
Area 13	6	0	0	16	1	24	9,020
Area 14	5	33	0	89	6	127	50,884
Area 15	12	5	0	42	15	59	17,942
						TOTAL	262,732

Figure 4: Potential Disposal Locations



Needs Evaluation					Solutions Evaluation					
Needs Area	Description	Predominate Technical Needs Criteria	Predominate Non-technical Needs Criteria	Ranking	Potential Offsite Solution	Negative Offsite Solutions Criteria	Positive Offsite Solutions Criteria	Implementation Comments	Next Step	Recommended Solution
1	Marshall Crossing Robbins Brook North Acton Village	Wetlands and wetland buffers Zone 1 and Zone II area Floodplains	Senior Housing (Robbins Brook)	Medium	Cluster with disposal at former septage lagoons	Former septage lagoons NARA - sensitive receptor Secondary growth impacts - many empty lots	Proximity to needs area Availability of land		Site investigation at disposal location	
2	Handley Woods North Acton Woods Acorn Park North Acton Condos	Private facilities in noncompliance Wetlands and wetland buffers Proximity to private wells Inadequate lot size		Medium	Cluster with Area 1	Former septage lagoons NARA - sensitive receptor		Private solution may be best	investigate private / public solutions for Henley Road	Wastewater management district for residential lots on Henley Road
3	East Acton Village Route 2A	Inadequate lot size High groundwater - mounded systems needed Wetlands and wetland buffers Floodplains	Economic growth center Aesthetics of mounded systems	High	Decentralized system with subsurface discharge near Route 2		Link to rail trail construction Consistent with Master Plan and EAV Plan Possible reuse of effluent	Timeline may not work for rail trail	Site investigation at disposal location	Decentralized system
4	Concord Road Poet's Corner	Wetlands and wetland buffers High groundwater - mounded systems needed	Aesthetics of mounded systems	Low	Link to Area 3					Wastewater management district

Needs Evaluation					Solutions Evaluation					
Needs Area	Description	Predominate Technical Needs Criteria	Predominate Non-technical Needs Criteria	Ranking	Potential Offsite Solution	Negative Offsite Solutions Criteria	Positive Offsite Solutions Criteria	Implementation Comments	Next Step	Recommended Solution
5	Brucewood Estates	High groundwater - mounded systems needed Wetlands and wetland buffers Flood plain	Aesthetics of mounded systems	Medium	Cluster system discharging to Zone II	Perception of discharge in drinking well protection area Permitting effort and cost	Recharge of aquifer	Zone II discharge	Site investigation of disposal location in Zone II	Cluster
					Cluster system on currently private land			Land acquisition		
6	Brookside Apartments Brookside Circle	Wetlands and wetland buffers Flood plain		Low	Connection to sewer		Removes a groundwater discharge permit	Sewer infrastructure improvements needed		
7	Powdermill Plaza	Partially in a Zone II High groundwater - mounded systems needed Wetlands and wetland buffers WWTF outfall to Assabet Floodplains	Economic growth in commercial area Aesthetic impact of mounded systems	High	Connection to sewer		Removes old WWTF with outfall to Assabet	Capacity available at Town WWTF	Process is underway	Connection to Acton sewer
8a	Maynard Border	Wetlands and wetland buffers		Medium	Gravity connection to Maynard			Small number of impacted lots Inter-municipal agreement needed		
8b	Audubon Hill (N&S)	Large private system failing	Pending pressure from DEP to fix failing system Sensitive receptor - Senior Center	High	Connection to sewer			Pump station required Permitted capacity limits at Town WWTF		Connection to Acton sewer

Needs Evaluation					Solutions Evaluation					
Needs Area	Description	Predominate Technical Needs Criteria	Predominate Non-technical Needs Criteria	Ranking	Potential Offsite Solution	Negative Offsite Solutions Criteria	Positive Offsite Solutions Criteria	Implementation Comments	Next Step	Recommended Solution
9	Heath Hen Meadow Liberty and Stow Streets	High groundwater - mounded systems needed Wetlands and wetland buffers	Aesthetic impact of mounded systems	Low	No		Isolated area with no local disposal options			Wastewater management district
10a	Spencer Road Area Tuttle / Flint / Mallard	Wetlands and wetland buffers Poorly drained soils - large drainfields on small lots		High	Connection to sewer		Possible link of residential area to Dover Heights solution	Permitted capacity limits at Town WWTF		Connection to Acton sewer
10b	Dover Heights	Large private system will need a new WWTF or sewer connection per DEP		High				May require 2 pump stations Permitted capacity limits at Town WWTF		
11	Nash and Downey Roads	Wetlands and wetland buffers	Sensitive receptor - Adjacent to Estimated Rare Wildlife Habitat	Medium	Connection to sewer	Permitted capacity limits at Town WWTF	Isolated area with no local disposal option	Multiple pumping stations needed Permitted capacity limits at Town WWTF		Wastewater management district
12	West Acton Center	Small lots Dense development Wetlands and wetland buffers Floodplains	Economic development center Regulatory pressure (schools) Historic District	High	Connection to sewer		Promotes economic development Consistent with Master Plan	Sewer along Mass Ave may be politically difficult Permitted capacity limits at Town WWTF	Investigate expansion of WWTF discharge permit	Connection to Acton sewer
					Cluster	Disposal location on private land Soils evaluation needed Limited capacity at disposal site	Avoids sewer in Mass Ave			

Needs Evaluation					Solutions Evaluation					
Needs Area	Description	Predominate Technical Needs Criteria	Predominate Non-technical Needs Criteria	Ranking	Potential Offsite Solution	Negative Offsite Solutions Criteria	Positive Offsite Solutions Criteria	Implementation Comments	Next Step	Recommended Solution
13	Indian Village	High groundwater - mounded systems needed Wetlands and wetland buffers Poorly drained soils - large drainfields on small lots	Aesthetic impact of mounded systems	High	Connection to sewer		Return neighborhood character by avoiding tree cuts for disposal fields	Fully built residential area - no secondary growth impacts Connection through West Acton Center Permitted capacity limits at Town WWTF		Connection to Acton Sewer
14	Colonial Acres Forest Glen Flagg Hill	High groundwater - mounded systems needed Poorly drained soils - large drainfields on small lots	Aesthetic impact of mounded systems	Medium	No			Isolated from sewer system with no local disposal location for entire area		Wastewater management district
15	Acton Center	High groundwater - mounded systems needed Poorly drained soils - large drainfields on small lots	Aesthetic impact of mounded systems Historic district	Low	No	If off-site available, large number of empty lots may be developed.		Maintain rural character of center		Wastewater management district

Project Summary Report to CAC
Town of Acton, Massachusetts
Comprehensive Water Resources Management Plan/Environmental Impact Report
Phase 1 Review and Phase 2 Kick-off

CAC Meeting – July 15, 2004

The CWRMP's first phase, which includes an assessment of the current environmental conditions in and around Acton, is complete with the submittal of the Phase 1 report to MEPA to begin the process for public review. The second phase has begun with the kick-off meeting with the CAC held on June 3, 2004. This document summarizes the roles and responsibilities of the CAC over the course of the process and presents the Wastewater Assessment Process.

Organization and Purpose of CAC

The CAC consists of stakeholders representing members of various town boards, local environmental groups, the Acton Water District, several local businesses and the general resident populace. The mission of the CAC is to:

- Serve as a representative Acton forum to offer views, comments and opinions about the CWRMP/EIR to the Town and consultant team;
- Help the Town and consultant team identify all relevant issues, topics and concerns about CWRMP/EIR by offering its good ideas and constructive comments;
- Demonstrate to MEPA and DEP by its periodic meetings and discussions that the diverse views of the community have been considered in the process; and
- Provide outreach to Acton residents and the community at large to communicate the process and results of the CWRMP/EIR and, hopefully, help to build a consensus for the plan that emerges from this process.

Previous CAC Meetings

In addition to the kick-off meeting, the Phase 2 process has two CAC meetings scheduled prior to completion of the Phase 2 report. Phase 1 meetings of the CAC achieved the following goals:

- Confirmed each Needs Area and established the level of effort to characterize each area through field investigations, especially for non-wastewater concerns such as neighborhood character, historical significance, etc; and
- Established the objective criteria by which each Area's wastewater needs will be assessed.
- Confirmed the results of the needs rating of each Study Area and established the technical criteria for determining potential sites for wastewater treatment and disposal satellite facilities.

Goals of the CAC (July 15, 2004 Workshop)

Goals of the July 2004 CAC meeting are to:

- Reach consensus on the technical (e.g. engineering and treatability) and "non-technical" (e.g. community, socio-economic, and implementability) criteria and assign relative weights to each if applicable.
    - The CAC will be evaluating criteria that are not typically defined as technical criteria to help prioritize the needs areas and refine the needs areas into study areas. These criteria include neighborhood character, historical significance, aesthetics, implementability, resource protection, and other factors.
- Determine disposal areas for further exploration.
- Reach consensus on the priority of needs areas and the preferred solutions.

Pre-work for the CAC (July 15, 2004 Workshop)

We request that the CAC review the material in the handouts prior to the meeting so that the meeting can quickly reach its goals. In particular, please consider the discussion included under Step 4 and review the following questions related to the tables included with this handout.

- Handout Table 1 and Table 2:
    - Which criteria are most important to you and are there other criteria that are not included here that should be?
- Handout Table 3:
    - Do you agree with the rankings of each service area given the "needs" criteria?
    - Which solutions criteria are important to you and which may not be included in the handout?
    - Are the recommended solutions feasible?
    - Do the recommended solutions match your vision of Acton's long-term character?

Needs and Solutions Process Summary

Figure 1 shows an outline of the assessment process. The process is comprised of two tasks, Needs Assessment and Solutions Assessment, which are conducted concurrently. **Table 1** and **Table 2** list the criteria for Phase 1, which covers the first three steps.

Step 1

Technical Criteria Evaluation. Areas in need of wastewater disposal solutions are identified. The data from the BOH records, CAC input, previous reports and studies, water sampling, and local regulations and bylaws form the basis for the analysis of the "needs" rankings.

General Technical Evaluation of Solutions. Potential technical alternatives for wastewater collection, treatment, disposal and management are evaluated for application in Acton.

Step 2

Create Needs Areas. Needs areas are created based on the technical evaluation and on "non-technical" parameters, including criteria suggested by the CAC.

Disposal Sites Evaluation. In-town locations for disposal facilities are identified though an evaluation similar to the needs assessment. The project team searched for publicly owned property with favorable soils located outside of sensitive resource areas.

Step 3

Create Service Areas. Needs areas are grouped into geographically logical areas, called service areas. Clusters of lots needing alternative wastewater disposal solutions as determined through the needs analysis are combined.

Figure 2 and Figure 3 show the results of applying this analysis to the Town. The figures show locations most likely suitable for on-site wastewater solutions and locations with potential need for off-site wastewater solutions. This lot-by-lot analysis was used to define future needs areas, realizing that data do not exist for all lots and off-site solutions are not practical for isolated lots. Figure 2 displays the minimum service areas based on combining closely grouped areas determined to require off-site solutions. Figure 3 displays the maximum service areas based on combining closely grouped areas requiring off-site solutions and adjacent parcels requiring on-site mounded and innovate/alternative systems.

Identify Disposal Locations. Potential locations are identified through analysis of the technical criteria and by applying the "non-technical" criteria similar to the process used to create needs areas. Through CAC input the team added land owned by non-profit agencies and large lots that are not fully developed, as well as locations along the Route 2 corridor.

The lots shown in **Figure 4** are the primary focus for locating satellite facilities. This process also benefited from the lot-by-lot detail provided by the converted BOH records. Preliminary analysis was completed in Phase 1, with continued analysis, including onsite investigations, in the next phase of the CWRMP/EIR.

Phase 2 begins with Step 4 and the June and July CAC meetings.

<u>Step 4</u>

Prioritize Service Areas. The service areas identified at this point are all priorities from a technical viewpoint. However, some technical issues may be more important than others to the Acton community. The "non-technical" criteria considerations also influence the rankings.

Prioritize Solutions At this point the potential solutions are matched to the prioritized service areas. First the service areas are prioritized and then recommended solutions are prioritized. The following discussion presents criteria that may be involved in the evaluation of "pros and cons" for each potential solution.

The availability of ***implementable*** solutions will govern the final recommended solutions. When considering potential solutions, regulatory, political, financial and popular opinions play a role, and will include the following issues presented during the June CAC meeting:

- Ability to "sell" a project at Town Meeting especially considering residents formerly included in the "old" sewer district that would not be served under the CWRMP plan.
- Perception of potential discharge in Zone II of public drinking water wells.
- Actual options available considering potential solutions (available discharge location, connection to sewer, etc.)
- Comparative "permitability" of the alternatives in terms of the relative ease of permitting and timeline to achieve regulatory approvals.

The time-line for implementation is also important because of the timing of related projects, as well as the overall time needed to implement a particular solution compared to other options.

- Potential to link to other opportunities such as rail trail construction.
- Other pending (large) problems that may see pressure from regulatory agencies (Audubon Hill, Gates and Douglas Schools, Powdermill Plaza)

Two other important criteria are required to be considered when selecting potential solutions to wastewater disposal needs.

- The solution should be consistent with the community's Master Plan, Open Space and Recreation Plan, and other local planning documents.
- Secondary growth impacts (positive and negative) should be evaluated if sewering a service area is considered a viable solution.

And finally, the expected costs of each solution will greatly factor into the overall assessment.

Table 1

Step 1 - Criteria for Technical Assessment

Needs Assessment

Regulatory Minimum Setbacks

- Property line
- Buildings
- Wetlands
- Floodplains
- Surface water
- Public well
- Private well
- Vernal pools

Design Parameters

- Percolation rate
- Depth to groundwater
- Depth to bedrock

Solutions Assessment

Preliminary Technology Evaluation

- On-site – management programs
- Clusters – available land
- De-centralized – available land
- Centralized In-town – capacity
- Centralized Regional – capacity

Table 2

Step 2 - Criteria for Needs Areas and Disposal Site Evaluation

Needs Assessment	Solutions Assessment
"Non-Technical" Criteria	**Site Evaluation**
• Aesthetics (mounded septic systems, etc.)	• Percolation rate (soils type)
• Community impacts and neighborhood character	• Depth to groundwater
• Archeological and historical impacts	• Depth to bedrock
• Proximity to abutters and human sensitive receptors	• Sensitive human receptors
	• Sensitive environmental receptors
	• Well impacts
	• Proximity to needs areas
	• Availability of land
	• Cost
	• Land uses
	• Proximity to archeological and historical resources

Attachments:

Figure 1: Wastewater Assessment Process

Figure 2: Minimum Service Areas

Figure 3: Maximum Service Areas

Figure 4: Potential Disposal Locations

Figure 1: Wastewater Assessment Process

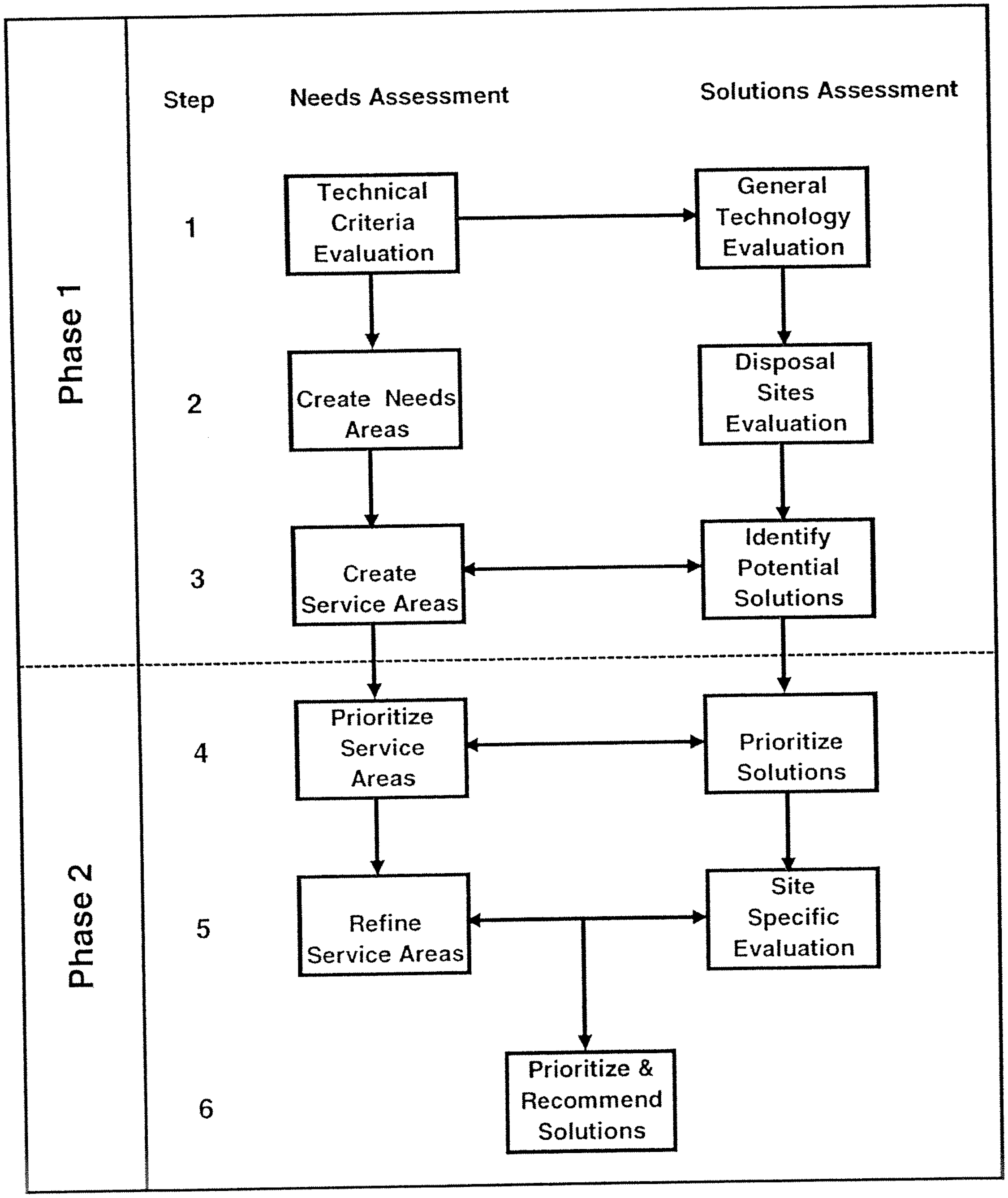


Figure 2: Minimum Service Areas

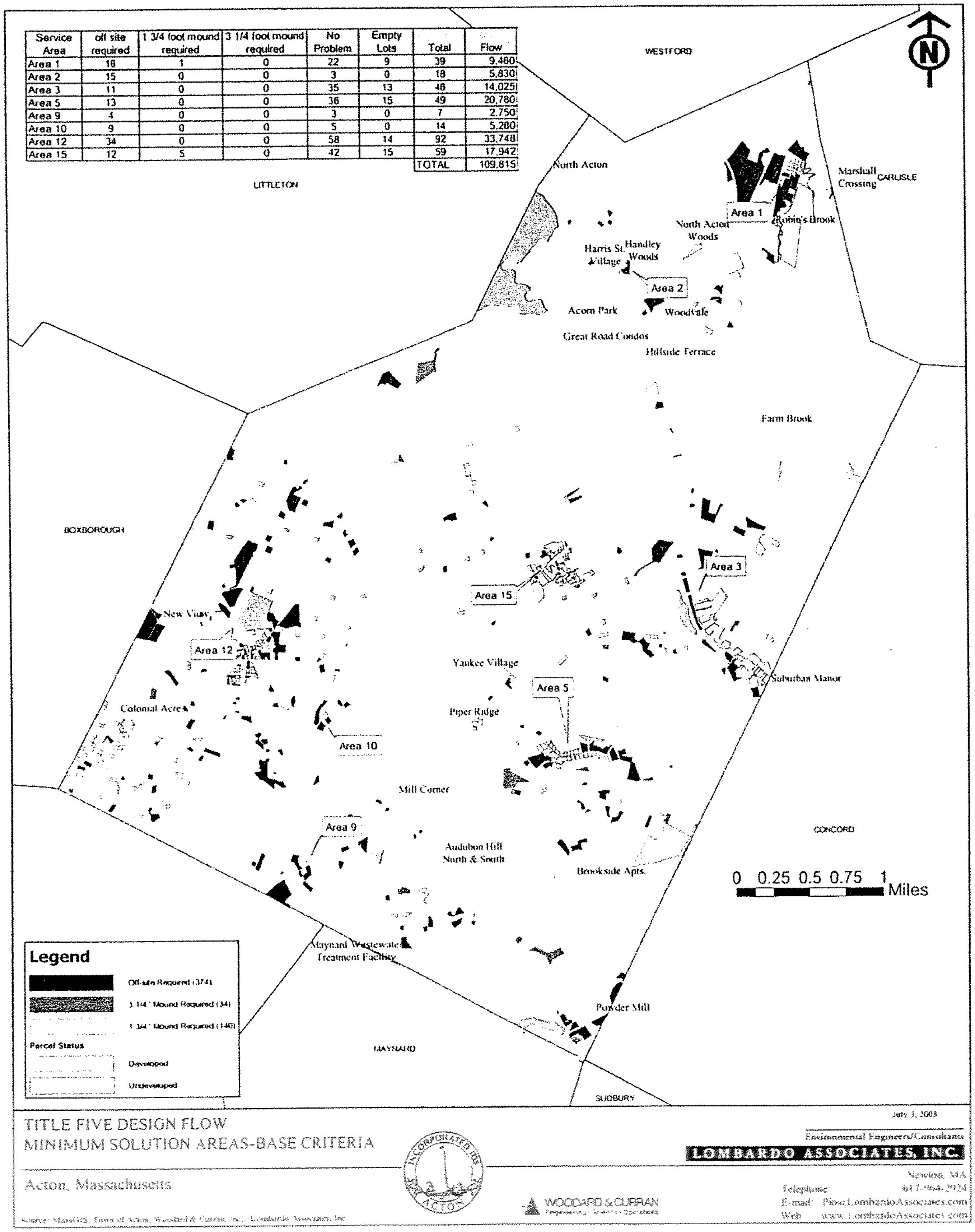


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Figure 3: Maximum Service Areas

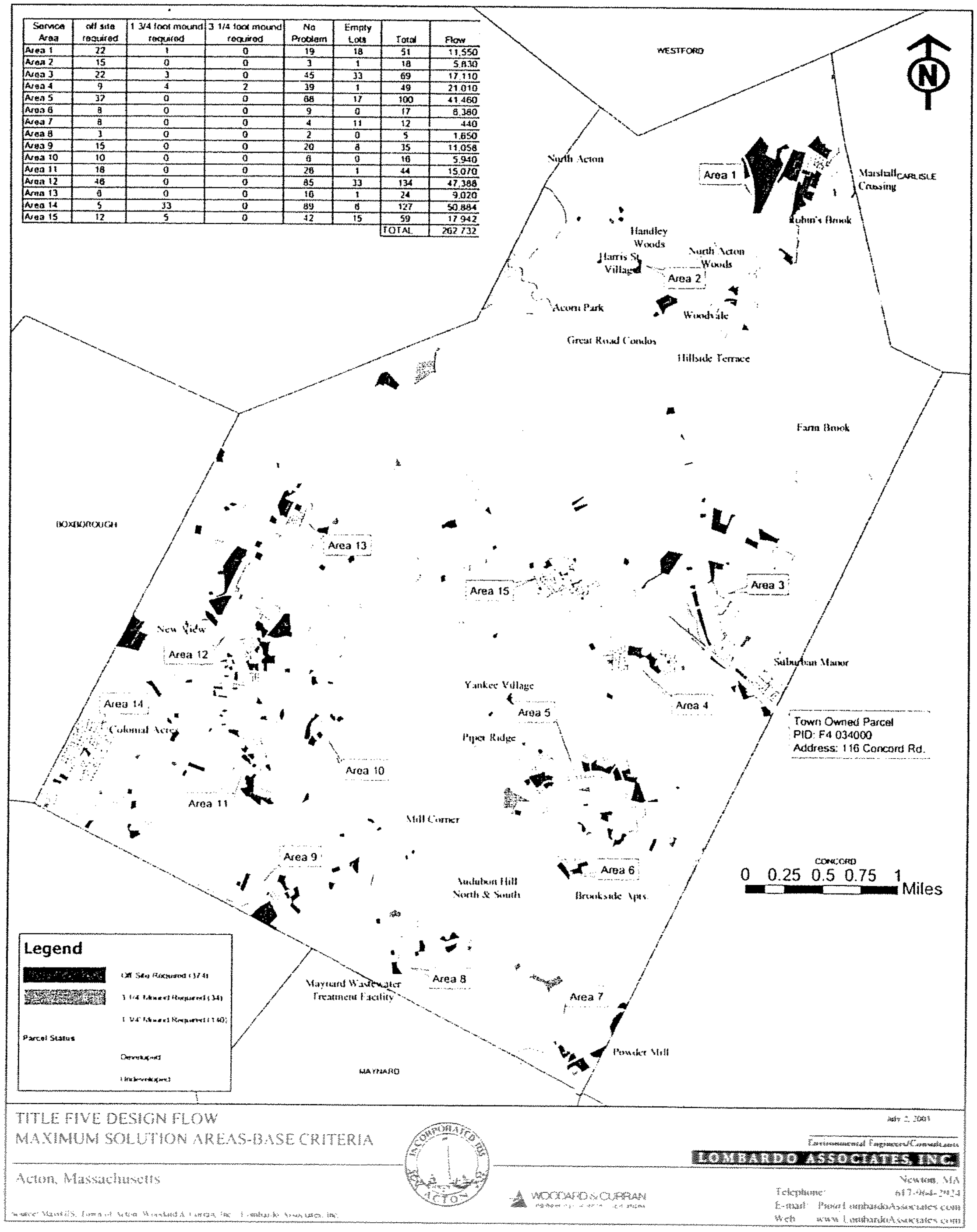

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Figure 4: Potential Disposal Locations

CORPORATE OFFICES: Maine, Massachusetts, New Hampshire, Connecticut, Florida
Operational offices throughout the U.S.

Town of Acton

ACTON WASTEWATER CITIZENS ADVISORY COMMITTEE

Comprehensive Water Resources Management Plan /
Environmental Impact Report
CWRMP/EIR
Thursday, June 3, 2004
7:00 PM

ACTON SENIOR CENTER

Meeting Goals:

Review the needs areas and potential solutions.

Reach consensus on the priority of needs areas and the preferred solutions.

Determine disposal areas for further exploration.

Agenda:

• Welcome	Doug Halley	5 min
• Introductions	All	5 min
• Project update	Helen Gordon	5 min
• Overview - needs areas & satellite locations	Bob Rafferty	5 min
• Potential solutions	Brent Reagor	15 min
• Break out session	All	30 min
• Q&A	Helen Gordon	10 min
• Next Steps	Bob Rafferty	5 min
• Evaluate the Meeting	All	5 min

Attachments:

Project summary informational handout - including figures

WOODARD & CURRAN INC. **MEETING MINUTES**

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MEETING DATE: June 3, 2004

REFERENCE: Acton CWRMP
CAC Meeting

ATTENDEES: CAC:
Jane Ceraso – Acton Water District
Ann Chang – CAC / SAC
Nancy Tavernier – CAC / SAC
Art Gagne – CAC / SAC
Pat Cumings – resident
Carol Holley - ACES
Tony Capobiano – Atlantic Management Co
Jim Shope – Nagog Woods Manager
Lauren Rosenzwerg – Planning Board
Stacey Rogers – Assoc Planning Board
Mary Michelman –ACES
Doug Halley – Health Director
Brent Reagor – Health Dept
Dan Garson – Woodard & Curran
Bob Rafferty – Woodard & Curran

DISTRIBUTION: Attendees
Helen Gordon
File

Submitted by: Robert Rafferty, P.E.

The following meeting minutes have been interpreted to the best of the writer's understanding with respect to topics discussed. A copy of these minutes has been sent to the attendees for their review and information. Additions and/or corrections are invited and will be made a matter of record. Mail, email, or fax additions/corrections to Woodard & Curran, Inc. Andover Massachusetts, Attn: Bob Rafferty. brafferty@woodardcurran.com

ATTACHED ITEMS

Agenda cover sheet
Presentation

Comments received on the presentation of "Potential Solutions of Priority Needs Areas" included:

Q. Have expected wastewater flows been calculated for the priority needs areas?
A. No. Anticipated wastewater flows have been calculated for the initial service areas presented with the handouts summarizing the Phase 1 work. The areas discussed in the presentation were drawn to include the maximum expected area. It will be more efficient to remove lots if needed than to expand the boundaries.

Q. How much capacity exists at the wastewater treatment facility on Adams Street?
A. Approximately 60,000 gallons per day (gpd) according to current wastewater flows. This will be reduced if the sewer is extended to the Powdermill Plaza area.

West Acton Center

Q. How much flow would the sewer system be able to take from this area?
A. The infrastructure was designed and built to handle the flow from this area. The WWTF is currently limited by permit to 250,000 gpd, but the infrastructure is sized for 500,000 gpd. The WWTF would need a new discharge point to be able to process the flow.

C. Extension of the sewer would require connecting houses along its route on Mass Ave, which is difficult politically.

Spencer/Tuttle/Flint Roads

C. Dover Heights apartments need a new system.
C. Beavers are active in this area.

Indian Village

C. Aesthetics are a concern currently. Many homes have mounded systems that required tree cutting.

East Acton Village

C. Stoneymeade area not shown as a problem area on the maps though is has groundwater problems.

Q. Is the Morrison property considered for disposal?
A. The property is not ideal because of groundwater near the surface. It is not completely ruled out, but it is not a preferred site.

Q. Does the preferred site (along Route 2 on the land farmed by MCI Concord for cow corn) have any conservation issues?
A. From CAC: Town bought the property and it may be managed by ConCom, but it was purchased for municipal purposes.

A. The town and property owner are currently negotiating the connection of the plaza to the Town's wastewater system. The existing plant is old and discharges to the Assabet. Further details are dependent on the negotiations.

Q. It appears that the Adams Street WWTF is needed for areas close to the site. What will be left for other sewer extensions?

A. The final priorities are still being evaluated but it is a significant consideration.

Q. What sort of public/private solutions are possible?

A. Nationwide there are several examples of wastewater districts owned and operated by private entities, similar to water districts. The most basic example is an industry accepting wastewater to its treatment facility from a community.

Q. Are I/A systems suitable to control building booms similar to growth seen in some areas of Acton?

A. On-site I/A systems are similar to septic systems in that they are considered temporary solutions. Once a sewer is built abutting a property, the property has 90 days to connect.

Q Area 1 (North Acton) appears to have many needs according to the maps. Why isn't this a priority?

A. The project team prioritized off-site solutions because on-site solutions, including establishing special wastewater management districts, are the default solution for all the service areas. Area 1 has one potential off-site solution at the former septage lagoons, which is a less than desirable solution. This area will be discussed at the next CAC meeting when the CAC reviews potential disposal locations.

C. Much of the initial "expanded" sewer district is not shown as being a needs area. The residents in this area were expecting sewers but were denied access. These residents may oppose sewering areas not in the initial district.

C. Timelines of projects are important when deciding priorities.

R. Some large systems may need to be replaced, which could trigger a review of alternative solutions, such as extending sewer to an area.

C. The schools put political weight behind sewer extensions for the Gates and Douglas Schools.

Q. Combining the construction of a rail trail with construction of a sewer off Route 2A is a good idea, but the timeline may be difficult. What would happen if the rail trail was built before the sewer?

A. The rail trail may be excavated to install the sewers.

C. A short discussion ensued regarding reuse and discharge of treated effluent in a Zone II. The CAC was divided on the safety. The CAC suggested that the project team must educate the public on the safety of this practice if this option is recommended.

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Project Update

What has happened since the last CAC meeting?

- Needs areas finalized and grouped into preliminary service areas. (See Attached Executive Summary)
- Potential treatment and discharge alternatives are identified.
- Comments from DEP on the Phase 1 report have been received and addressed.
- The report was submitted for MEPA process – public review.
- Phase 2 has started.

Overview

Wastewater Collection, Treatment and Disposal Alternatives

Collection, treatment and disposal alternatives are inextricably linked, making the process somewhat iterative. The analysis includes a review of technical, financial, aesthetic, political, environmental, and public health considerations.

We have identified between 8 and 15 areas that have some need for wastewater disposal solutions. Each area is unique with its own set of needs and potential solutions. Some areas may not have "constructible" solutions.

Potential wastewater solutions

- Wastewater management program (on-site systems),
- Cluster systems,
- Decentralized options,
- Connection to the existing sewer system, and
- Do nothing.

Summary of Analysis Results for Discussion

A summary of the analysis results is presented in Table 1.

Locations of the needs areas are presented in two figures from the CWRMP/EIR. Figure 1 displays the minimum service areas based on combining closely grouped areas determined to require off-site solutions. Figure 2 displays the maximum service areas based on combining closely grouped areas requiring off-site solutions and adjacent parcels requiring mounded systems.

We have identified potential locations for wastewater disposal as shown in Figure 3.

Our break out session will focus on six representative areas that illustrate the levels of need and priority of solutions. These six areas are highlighted in Table 1.

Table 1: Possible Solutions to Identified Needs Area

Needs Area	Description	Possible Solutions	Comments
1	Marshall Crossing Robin's Brook	• Disposal to former septage lagoons	• Disposal site in or adjacent to Zone II
2	Handley Woods North Acton Woods Acorn Park North Acton Condos	• Wastewater Management District • Possible combination with Area 1 for wastewater system	• Existing private ownership of large Title 5 systems, cluster systems, small package treatment plants • Henley – residential area with private wells
3	East Acton Village Route 2A	• Decentralized wastewater system with subsurface discharge near Route 2 • Rail trail route for infrastructure	• Commercial area dependent on economic growth
4	Concord Road Poets Estates	• Possible extension (Phase 2) of East Acton Village solution	• Residential area with high groundwater
5	Brucewood Estates	• Decentralized wastewater system	• Disposal site in or adjacent to Zone II • Disposal site on private property
6	Brookside Apartments	• Potential for connection to sewer system	• Disposal site in or adjacent to Zone II
7	Powdermill Plaza	• Connect to Acton sewer system	• Plaza has an existing treatment plant with outfall to the Assabet River
8	Maynard border Audubon Hill (North & South)	• Gravity connection to Maynard system • Connect to Acton sewer system	• Sporadic "bad" lots not economically feasible to connect to Acton's sewer • Pump station required
9	Heath Hen Meadow	• Wastewater Management District	• High groundwater • Isolated area with no local disposal options

Needs Area	Description	Possible Solutions	Comments
10	Spencer Road Area Tuttle / Flint / Mallard Dover Heights	• Connect to Acton sewer system	• Pump station required
11	Nash and Downey	• Wastewater Management District	• Multiple pumping stations required to connect to Acton's sewer system. • High groundwater with no local disposal options
12	West Acton Center	• Connect to Acton sewer system	• Commercial center • Dense development
13	Indian Village	• Connect to Acton sewer system	• Residential area – fully built
14	Colonial Acres	• Wastewater Management District	• Isolated from other systems with no local disposal options • High groundwater problem may be solved with mounded systems
15	Town Hall	• Wastewater Management District	• Isolated from other systems with no local disposal options

ACTON CWRMP PHASE I

EXECUTIVE SUMMARY

The Town of Acton filed an Environmental Notification Form (ENF) in October 1998 for the Middle Fort Pond Brook Sewer Project. The ENF requested a "Special Procedure" under the Massachusetts Environmental Policy Act (MEPA) to phase the overall environmental analyses, regulatory review and approval, and engineering design of a town-wide wastewater collection and treatment management plan to address the immediate and long-term growth needs of the Town.

The Secretary of Environmental Affairs issued a Certificate for the project on December 1, 1998. The MEPA Certificate (EOEA No. 11781) established a Special Procedure for the preparation and review of an EIR for town-wide wastewater facilities planning and development. This allowed the Town to proceed with design and construction of an advanced wastewater treatment facility on Adams Street and approximately 10 miles of collection system outside of the MEPA review process. A Special Procedure was established to address the remaining town-wide wastewater facilities planning and assessment requirements under a comprehensive, phased set of reports for long-range planning.

The Comprehensive Water Resources Management Plan / Environmental Impact Report (CWRMP/EIR) for the Town of Acton consists of four phases. The first phase, of which this report presents the findings and conclusions, includes an assessment of the current environmental conditions in and around Acton. Water demand projections are estimated for the 20-year study period and impacts to the present and future water supply are reviewed. Current storm water systems and programs are reviewed. Current wastewater management systems are discussed, followed by a determination of wastewater needs. Finally, potential locations for satellite wastewater treatment facilities are presented.

The Town of Acton recognizes the need to look at water resources in a comprehensive manner. This includes soliciting and incorporating resident and other stakeholder input. This study includes public outreach in the form of three Citizen Advisory Committee (CAC) meetings. The CAC communicated issues of importance to the residents of Acton and provided valuable insight, historical and anecdotal information, and direction to the project team.

The Town recently built a state-of-the-art treatment facility and groundwater discharge system with aggressive phosphorus removal. The Town has conducted surface and ground water sampling for several years and has developed an extensive database of fecal coliform levels throughout the Town's surface waters. The Town proactively engaged in stormwater planning, not only with the recent EPA Phase II requirements, but also by winning a 319 grant in 2001 to implement stormwater best management practices to reduce phosphorus loading in local waterways. The Town works closely with the Acton Water District, which has recently updated its master plan and conducted an assessment of land use risks to its wells. This first phase of the CWRMP/EIR compiles and synthesizes elements of all these projects into a comprehensive evaluation of Acton's water resources.

The Town of Acton is a residential community located approximately 25 miles northwest of Boston, MA. The Town has a proactive municipal staff that is actively engaged in finding solutions to wastewater issues and water quality problems. The Town's Board of Selectmen currently acts as the Sewer Commissioners. Several active environmental organizations are located in Acton and the surrounding Sudbury-Assabet-Concord (SuAsCo) Rivers Watershed.

Acton's most current census population is approximately 20,000. The Town's Master Plan projects the ultimate buildout population to be approximately 29,200, which will be reached in 40 years. Acton's estimated maximum residential buildout is approximately 10,600 dwelling units (defined as the residence of one family), a net increase of about 3,400 units over the 1998 housing stock of 7,200 units. About 68% of this net increase is attributed to further development of existing developed parcels. Non-residential buildout is estimated to come through greenfield development (40%) and expansion and conversion of existing developed parcels (60%).

The entire Town lies within the drainage basin of the Assabet River. The two principal streams in Acton are Nashoba Brook and Fort Pond Brook. The Assabet River has been identified as receiving excessive levels of nutrients, particularly phosphorus. The sources identified as the leading cause of nutrient impairment in the Assabet River are the publicly-owned wastewater treatment facilities located upstream of Acton. During summer months, under low flow conditions, wastewater treatment facility effluent accounts for approximately 80% of the total river flow.

The topography of Acton is characterized by gently rolling hills and some small peaks. Elevation gradually increases from the southeast to the northwest. Acton's surficial geology is predominated by sand/gravel and till/bedrock deposits. Generally, the sand and gravel deposits occur in the narrow and constrained valley aquifers along the principal streams of the Town, and run in north-south lines. A large strip of till/bedrock separates the two sand/gravel areas. These aquifers are the only source of public drinking water in Town.

Approximately 95% of Acton's population is served by the Acton Water Supply District (the District). The District withdraws drinking water from five locations in these areas of sand and gravel. Drinking water sources consist of eleven wells and wellfields, nine of which are treated by packed tower aeration (PAC), granular activated carbon (GAC), or a combination of the two technologies. The District regularly enacts water use restrictions and is proactive in public education of water issues, especially promoting conservation measures.

The District is permitted to withdraw up to 1.93 MGD on average over a calendar year. In 2002 the District's average daily withdrawal was 1.86 MGD, with a maximum demand day of 2.90 MGD. The Acton Water District exceeded its permitted average daily withdrawal capacity only once, in 2001, when unaccounted water reached 19% of water withdrawn primarily due to an open valve that allowed unmetered water to flow from Acton's distribution system into Maynard.

With the exception of 2001, the District's average daily use has remained at approximately 1.85 MGD since 1997 even though Acton's population as grown by about 10 percent during that period. The District's Master Plan predicts an average daily demand of 2.24 MGD by 2011, with a maximum day demand of 3.68 MGD by 2011.

Much of the Town's drainage system was constructed in the 1930's through the programs of the Works Progress Administration. At that time, little consideration was given to controlling the quantity or quality of stormwater entering natural water bodies. Since approximately 1980, the Town's Subdivision Rules and Regulations require new commercial and residential developments in Acton to collect and convey runoff into a vegetated detention basin. In addition to these rules, developers of subdivisions containing five or more lots must adhere to Stormwater Management Standards set forth by MADEP.

The geography of Acton is not conducive to non-point source (NPS) controls having a direct benefit on the Assabet River. The only section of Acton that discharges directly to the river is the southeastern corner of Town. All of Acton streams flow through local water bodies to Warner Pond in Concord prior to entering the Assabet River.

In conjunction with the recent construction of the wastewater collection and treatment system, the Town has undertaken several projects to address stormwater issues. Acton is conducting a Watershed Trading Study aimed at reducing phosphorus loading on local waterways. The project (MADEP Project 00-07/319) is funded by an EPA 319 grant. According to the USEPA grant scope, "The project is intended to pilot watershed trading programs that will become increasingly important and common in the coming years…" Acton will construct two structural best management practices (BMPs), a wetland to reduce phosphorus in the local swimming pond, and undertake several nonstructural measures to improve regulations and inform and involve the general public. The grant work is being undertaken in conjunction with this CWRMP/EIR and the recently completed Stormwater Management Plan required by EPA under the Phase II program.

The Middle Fort Pond Brook Sewer System, which includes an advanced wastewater treatment facility (WWTF) with 10 miles of gravity sewer and ten pumping stations, has been on line since February 2002. The sewer system serves approximately 700 total parcels. The WWTF is permitted for 250,000 gpd with an effluent phosphorus limit of 0.2 milligrams per liter (mg/l). The facility discharges to rapid infiltration beds (RIBs) on the bank of the Assabet River.

The town is served by ten privately owned and operated cluster wastewater systems that are permitted to collect, treat and discharge approximately 450,000 gpd. Eleven small-medium cluster systems contribute a total of approximately 90,000 gpd of wastewater treatment and disposal capacity. These facilities discharge to subsurface disposal systems.

Approximately 84% of the town's developed parcels use on-site wastewater disposal systems. The Acton Board of Health (BOH) maintains a complete set of records for all septic systems in Acton. The BOH file system includes permit lists, Title 5 inspection lists, variance list (1995-2001), Geographic Information System (GIS) database, design data list, and non-electronic files (paper and microfiche) containing design and permit details.

To determine areas in need of wastewater disposal solutions, specific data were evaluated, including system age, repair history, septage pumping records, inspection data, variances, private wells location, parcel size, depth to groundwater and bedrock, and percolation rate. The files and database form the basis for the wastewater needs analysis. Key design data recorded in existing non-electronic files were digitized for this project and merged with existing BOH electronic information into a comprehensive GIS database. Soils parameters available through standard Natural Resources Conservation Service (NRCS) mapping were adjusted based on BOH records.

The analysis was applied town-wide, incorporating an improved and more detailed approach to identifying areas in need of wastewater solutions on a lot-be-lot basis. This process evaluates wastewater needs without presumptions or unintended bias inherent in preconfigured study areas.

Over 90% of the existing septic systems can remain as on-site systems for the planning period, with approximately 3.5% of these lots requiring innovative/alternative (I/A) technology and/or mounded systems. Lots identified as requiring offsite solutions to wastewater disposal problems are dispersed throughout the community.

Attempting to service only the dispersed lots with off-site solutions would be technically impractical and cost prohibitive. The lots identified as needing off-site solutions could be joined by adjacent lots to create independent service areas that may be more economically feasible to address. These needs areas will be further reviewed by the project team, with input from DEP, Town staff, CAC and general public as part of the forthcoming phases.

The range of wastewater flows projected to be collected treated and dispersed from the proposed needs/service areas is between 110,000 gpd and 265,000 gpd. Potential solutions to locating facilities and selecting appropriate technology for offsite solutions, whether decentralized/cluster facilities or expansion/extension of the existing wastewater collection and treatment system, will be further evaluated in forthcoming phases of the study. A critical component of this evaluation is the determination of potential locations for wastewater effluent disposal within Acton.

The principal tool used in identifying areas of interest (AOI's) with potential for wastewater disposal has been the GIS databases derived from the Town of Acton's GIS system and MassGIS. These databases provide information on soil type characteristics, depth to seasonal high groundwater, depth to bedrock, level of development, and location of sensitive receptors. Preliminary analysis of selection criteria concludes that approximately 620 acres are available within Acton for locating wastewater treatment and disposal facilities. Additional parcels identified by the town and CAC input may provide effective alternatives to the lots selected from the analysis.

The Town is currently comparing actual flows at the central WWTF to the design flows to maximize the facility's effectiveness and optimize the potential solutions to wastewater needs. Pending this analysis, the first needs area under consideration for extension of the existing wastewater collection system is the Powdermill Plaza area, currently served by an older treatment facility that discharges directly to the Assabet River.

Phase II of the CWRMP/EIR includes pairing of the needs areas with potential disposal locations, including subsurface investigations if needed. Collection and treatment technologies will be evaluated for each needs/service area.

Innovative/Alternative Onsite Wastewater Technologies

Innovative / Alternative (I/A) treatment and disposal systems tend to be modular and can be scaled from individual properties to serve clusters of properties at larger flows. Generally, the I/A systems are innovative smaller versions of conventional treatment system technologies, using either suspended or fixed media, or a combination of both. The specific mechanical and operational systems make them more conducive to individual or cluster systems and can reduce operation and maintenance requirements while performing at levels much higher than conventional Title 5 systems. However, the historical record for operating these specific technologies at larger flows (greater than 30,000 – 50,000 gpd) is sparse. At these flows these technologies usually give way to conventional treatment technologies such as extended aeration, sequencing batch reactors, and rotating biological contactors with more operating and performance history.

I/A technologies are available for both treatment and disposal of wastewater in onsite systems. A summary of these technologies is attached in Tables 4 and 5.

Use of I/A Technology in Massachusetts

Typical use of I/A technology in Massachusetts (design flows under 10,000gpd) is governed by Title 5 (310 CMR 15.000), specifically, 310 CMR 15.280-15.289. This section of the regulations lists the approval process for the technologies, and the general conditions applicable to all systems utilizing these technologies.

Types of I/A Technologies

I/A technology can be grouped into two major areas: Treatment and Disposal. The names are self-explanatory. Within the two major groups, there are subgroups:

Treatment:

Active Treatment -	requires an "active" component, which is usually an aerator (blower) and/or a mixing arm that physically adds air and agitates the wastewater during the treatment process.
Passive Treatment -	usually involves application of wastewater to a media filter consisting of textile, foam, peat, or sand. The treatment of the wastewater occurs within the media and the wastewater can then be disposed of within the soil absorption system.

Disposal:

Pressurized -	employs pressure within the network of pipes to disperse the effluent evenly across the soil absorption system.
Non-pressurized -	does not employ pressure, but relies on gravity to disperse the effluent within the soil absorption system.

Each of these subgroups has both their advantages and disadvantages; these are listed within Tables 4 and 5.

Treatment

Active

Technology Name	Manufacturer/Distributor	Type of Process
Cromaglass	Cromaglass Corp., Williamstown, MA	Sequencing Batch Reactor
JET Home Aerobic System	Clearwater Recovery, Rockland, MA	Aerobic Treatment Unit
FAST (Fixed Film Activated Sludge)	J&R Associates, Raynham, MA	Aerobic Treatment Unit
Singulair	Siegmund Environmental Services	Aerobic Treatment Unit
Amphidrome	FR Mahoney and Associates, Rockland, MA	Submerged Attached Growth Sequencing Batch Reactor
MicroSepTec Enviroserver	MicroSepTec Inc., Laguna Hills, CA	Aerobic Treatment Unit
OAR	Environmental Operating Systems, Falmouth, MA	Aerobic Treatment Unit
Biocycle	Biocycle, Providence, RI	Aerobic Treatment Unit

Advantages	Disadvantages
Shorter startup period	More sensitive to upset
High BOD/TSS Removal	Higher life cycle costs

Passive

Technology Name	Manufacturer/Distributor	Type of Process
Recirculating Sand Filter	Non-proprietary	Sand Filter
Ruck	Holmes and McGrath, Falmouth, MA	Biofilter
Intermittent Sand Filter	Orenco Systems Inc., Sutherlin, OR	Sand Filter
Bioclere	Aquapoint, New Bedford, MA	Trickling Filter
Waterloo Biofilter	Clearwater Industries, Ipswich, MA	Biofilter
Nitrex	Lombardo and Associates, Newton, MA	Trickling Filter for Nitrogen Removal
PhosRID	Lombardo and Associates, Newton, MA	Trickling Filter for Phosphorus Removal
PuraFlo	Bord na Mona, Greensboro, NC	Peat BioFilter
EcoFlo	Premier Tech, Birmingham, MA	Peat BioFilter
Advantex	Orenco Systems Inc., Sutherlin, OR	Textile BioFilter
SeptiTech	SeptiTech of Massahcusetts, Cohasset, MA	Trickling Filter with Aeration
CFT Ruck	NorthCoast Technologies, Falmouth, MA	Aerobic Ruck Filter

Advantages	Disadvantages
Lower life cycle costs	Longer startup period
Less sensitive to upset	Some types require a larger footprint than active systems
Better for nutrient removal	

Collection Systems

Gravity collection systems are generally the default convention because of the simpler system components and life cycle costs (O&M). Alternative collection technologies such as pressure or vacuum systems can be less expensive to install because of shallower burial depths, particularly for more rural areas where the number of connections is less per linear foot than more densely developed areas. Pressure or vacuum sewers can be installed where pipe slope needs to be installed against surface grades.

Gravity Systems

Gravity systems are comprised of large diameter pipe (greater than 8-inches) with manholes generally spaced at a maximum of 300 feet and at changes in slope and direction. These systems can be the most economical for life cycle cost calculations and best in densely developed locations with grades to support flow. Most gravity systems have centralized pumping stations to overcome adverse grades.

Septic Tank Effluent Gravity or STEG systems use onsite septic tanks to remove solids with effluent flow to gravity sewers, which can be smaller than conventional because of lower solids content. STEG systems are commonly used to sewer areas with existing septic tanks for short distance conveyance.

Pressure Sewers

Pressure sewers are comprised of smaller diameter pipe buried at a depth shallower than gravity systems. These sewers require pumps at individual connections, either grinder pumps that macerate solids or septic tank effluent pumps (STEP) that pump septic tank effluent. Pressure sewers are commonly used in areas of adverse topography or where deeper excavations will be cost prohibitive due to geology or groundwater, or in rural areas with large distances between user connections.

The primary difference between grinder pump systems and STEP systems is the amount of solids conveyed to the collection system. STEP systems rely on septic tanks to remove settleable solids, grease, and grit. Therefore, septic tanks must be pumped regularly. Grinder pumps require slightly more electrical power.

Vacuum systems

Vacuum systems operate under low vacuum instead of gravity or pressure and are comprised of small diameter pipe buried at shallow depths with receiving tanks at individual user connections.

Vacuum systems are typically installed in rural areas to minimize the cost of deeper excavations and in relatively flat terrain because of limited ability to overcome elevation differences. The general convention for vacuum systems is to limit use to areas with less than 20 feet of elevation gain. Larger elevation gains can be achieved by intermediate vacuum pumps and air admittance systems. Odors at the vacuum stations can be an issue that should be considered.

Table 5

Disposal

Pressurized

Technology Name	Manufacturer/Distributor	Type of Process
GeoFlow	J&R Associates, Raynham, Ma	Drip Irrigation
Pressure Distributed SAS	Non-proprietary	Pressurized equal distribution of effluent

Non-Pressurized

Technology Name	Manufacturer/Distributor	Type of Process
BioDiffuser	Advanced Drainage Systems, Hillard, OH	Chamber
Cultec Chambers	Cultec Inc., Brookfield, CT	Chamber
Eljen In-Drain	Eljen Corp., East Hartford, CT	Chamber with Media
Hancor Enviro-Chamber	Hancor, Findlay, OH	Chamber
Infiltrator Chambers	Infiltrator Systems, Old Saybrook, CT	Chamber

Cluster Systems / Package Plants

A cluster system is a wastewater collection and treatment system that serves two or more dwellings, but less than an entire community. Individual septic tanks or aerobic units may pre-treat wastewater from several homes before it is transported to a treatment unit that is relatively small compared to centralized systems.

Small satellite treatment plants or soil absorption systems that have low-cost collection sewers are called cluster systems. Cluster systems treat wastewater from a group of dwellings and/or businesses and are most appropriate in moderately populated areas. These systems are located near the buildings they serve. These units often use soil absorption fields or effluent recycling rather than discharge the treated wastewater to surface waters.

Package plants are cluster-type systems in size and application but also are similar to larger centralized technologies. Alternative collection technologies can be used to convey the wastewater to the plant.

Decentralized Systems

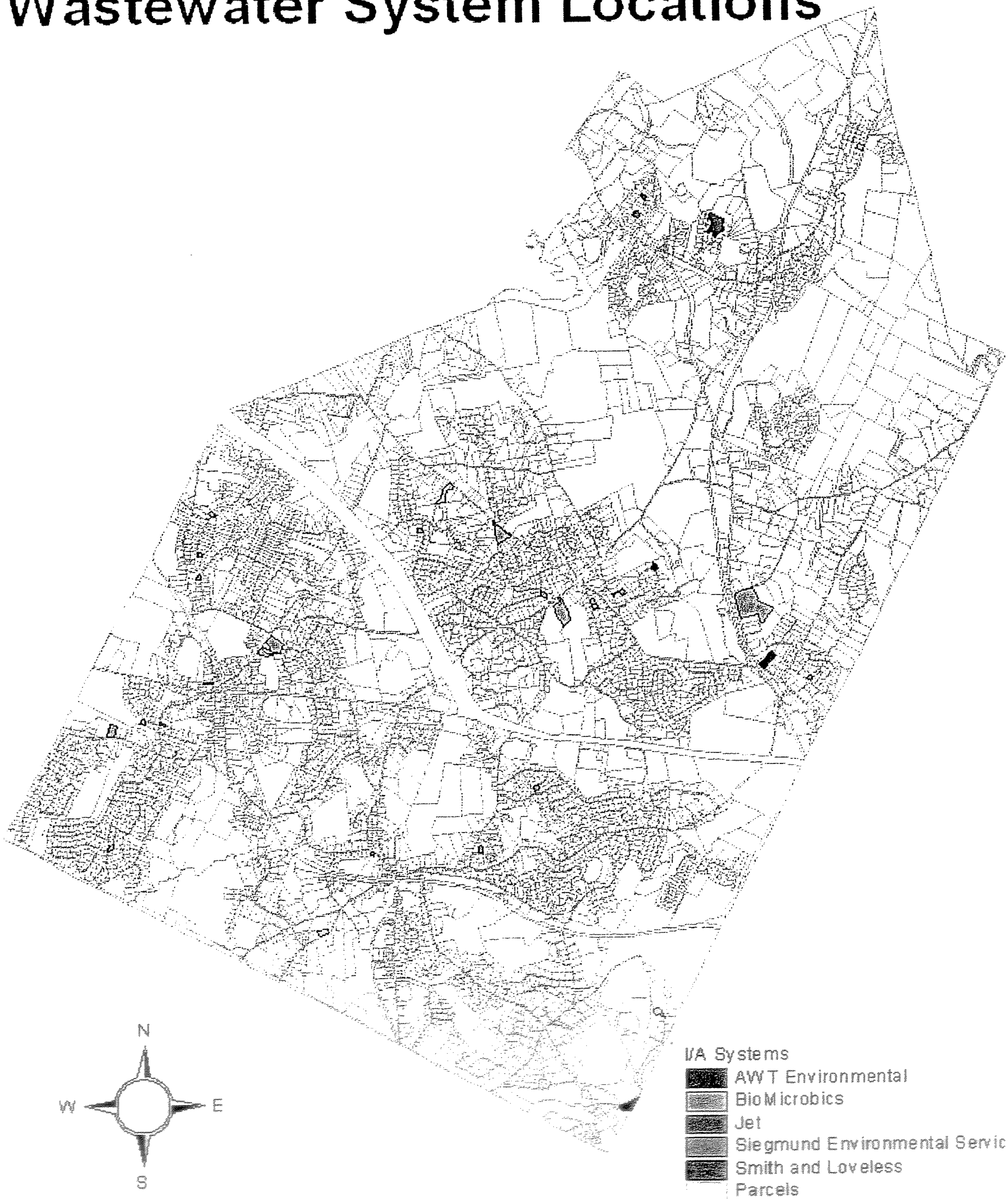
A decentralized system is an onsite or cluster wastewater system that is used to treat and dispose of relatively small (or intermediate) volumes of wastewater, generally originating from individual or groups of dwellings and businesses that are located relatively close together. Onsite and cluster systems are commonly used in combination. The choice of a decentralized treatment involves using a combination of treatment technology options, both traditional and innovative, where they are most appropriate in a community. Conventional onsite systems, alternative onsite systems, cluster systems for groups of homes and businesses, and some use of centralized treatment can be included when considering decentralized community wastewater management.

Decentralized systems allow for flexibility in wastewater management. Different parts of the system may be combined into trains or series of processes to meet treatment goals, overcome site conditions, and to address environmental protection requirements. For instance, watertight interceptor (septic) tanks at each home or business may be combined with a watertight collection system running to a treatment facility.

Proponents of decentralized systems commonly cite the following reasons for choosing decentralized over centralized:

1. Saves money by deciding on a preventative strategy (such as assessing conditions and needs in a specific area of a community) to manage wastewater before crisis occurs, thereby avoiding unnecessary cost;
2. Allows homeowners to continue to use their properly functioning septic systems;
3. Maintains community character and is consistent with growth plans by avoiding sewering of large areas to reach centralized facilities;
4. Enables better watershed management by eliminating the large transfers of water from one watershed to another;
5. May be the most cost-effective treatment strategy for rural communities with sparse populations; and
6. Is appropriate for varying site conditions including ecologically sensitive areas. Treatment methods can be tailored to suit different site conditions.

Innovative/Alternative Wastewater System Locations



Potential Solutions for Priority Needs Areas

Brent Reagor, RS

What Are the Priority Needs Areas?

- West Acton Center
- Spencer/Tuttle/Flint Roads
- Indian Village
- East Acton
- Brucewood Estates
- Flagg Hill
- Audubon Hill

Construction of a New Sewer System

- Significant Capital Cost
- Could be designed to "mirror" the components at the existing Adams Street WWTP
- Additional infrastructure construction could occur simultaneously
  - Stormwater improvements
  - Rail Trail
  - Water Line Extensions

Decentralized/Cluster Systems

- Well-suited for:
  - Isolated areas of primarily residential development
  - Flows of less than 100,000 gallons per day
- Could be Town-owned or part of a Public/Private Partnership
- An adequate disposal area would have to be identified

West Acton Center

West Acton Center

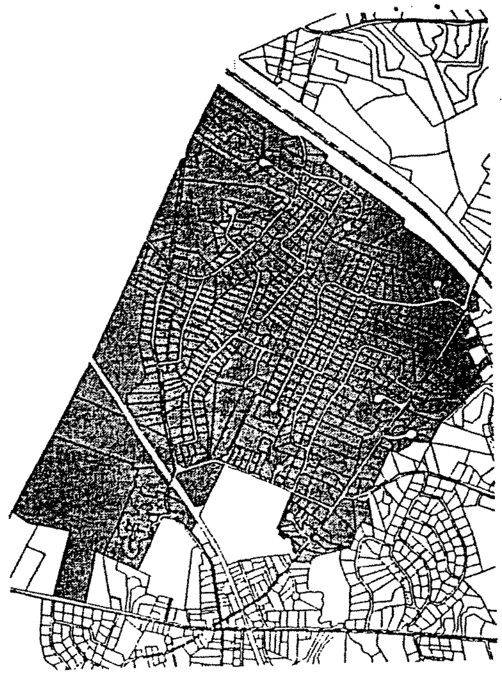
Problems

- Dense Development
- High groundwater on some lots
- Commercial Uses
- Douglas and Gates Schools are on one parcel and will be required to construct a WWTP or connect to sewers by DEP

Solutions

- Connect to the existing sewer system

Indian Village



Indian Village

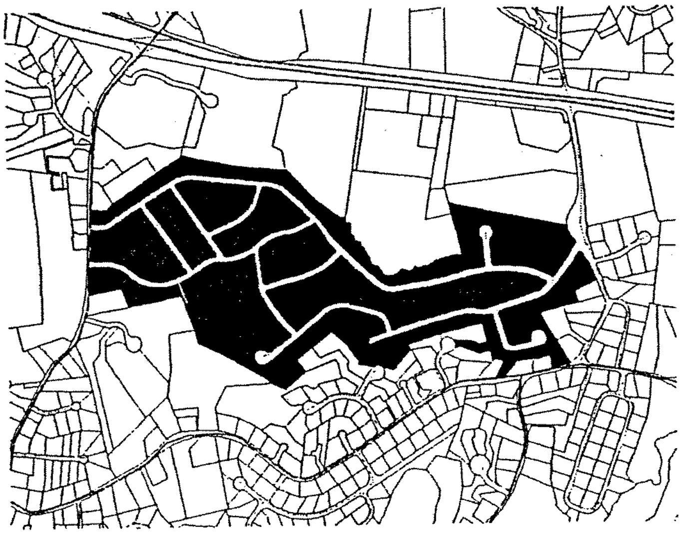
Problems

- Residential development at "full buildout"
- Wetlands issues on some lots
- Poorly drained soils on some lots
- Construction of new onsite systems in the last 10 years has greatly reduced the number of trees

Solutions

- Connect to the existing sewer system
  - This connection would require an additional discharge point for the treated wastewater
    - Assabet River
    - Additional Rapid Infiltration Basins

Brucewood Estates



Brucewood Estates

Problems

- High groundwater
- Poorly drained soils
- Wetlands
- Flood Plain
- Primarily residential area

Solution

- Decentralized/Cluster system
- Possible disposal in a Zone 2
- Disposal site on State or private property
- Possible Wastewater Management District

Audubon Hill

Audubon Hill

Problems

- Audubon Hill South system in failure
- DEP will likely aggregate the flows from both North and South together
- This will require a WWTP be constructed as the flows are over 14,000 gallons per day

Solution

- Connect to the Acton Sewers on Faulkner Hill Road

Bob Rafferty

From: Brent Reagor [breagor@acton-ma.gov]
Sent: Tuesday, June 22, 2004 11:50 AM
To: Bob Rafferty; Doug Halley
Cc: Helen Priola
Subject: CWRMP Design Flows

At the last CWRMP meeting, the CAC requested design flows (title 5) for the service areas identified in my presentation. Here they are:

Flagg Hill (Area 14):	64460 gallons per day
Brucewood (Area 5):	63690 gallons per day
Spencer/Tuttle/Flint (Area 10):	66265 gallons per day
Indian Village (Area 13):	217775 gallons per day
West Acton Center (Area 12):	80807 gallons per day
Audubon Hill (Area 8b):	14751 gallons per day

I have all of the spreadsheets with this information on my computer. Let me know if you have any questions.

--Brent

Brent L. Reagor, R.S.
Acton Board of Health
472 Main Street
Acton, MA 01720
P -- (978) 264-9634
F -- (978) 264-9630

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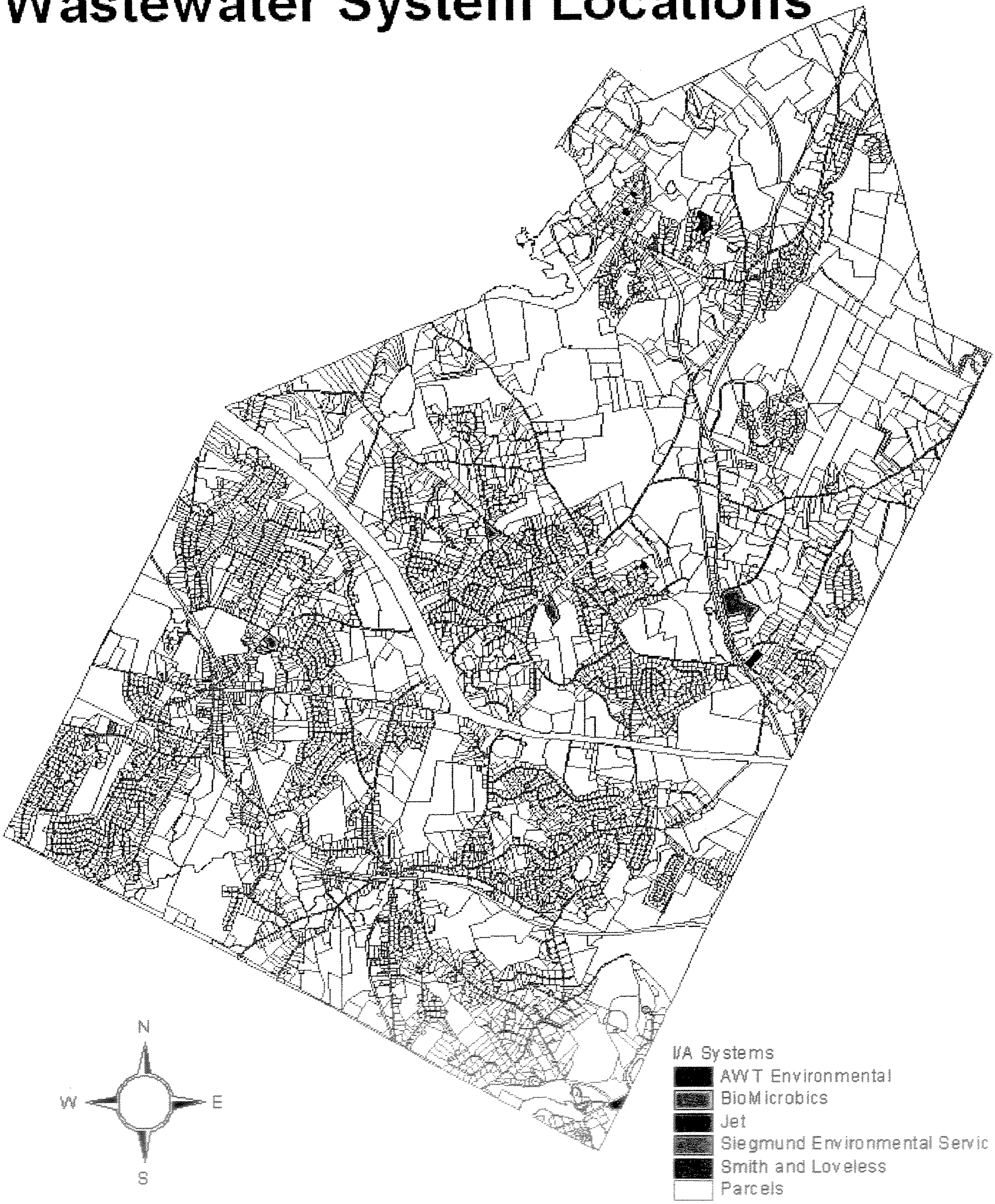

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Pressurized - employs pressure within the network of pipes to disperse the effluent evenly across the soil absorption system.

Non-pressurized - does not employ pressure, but relies on gravity to disperse the effluent within the soil absorption system.

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Table 4

Treatment

Active

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Biocycle	Biocycle, Providence, RI	Aerobic Treatment Unit

Advantages	Disadvantages
Shorter startup period	More sensitive to upset
High BOD/TSS Removal	Higher life cycle costs

Passive

Technology Name	Manufacturer/Distributor	Type of Process
Recirculating Sand Filter	Non-proprietary	Sand Filter
Ruck	Holmes and McGrath, Falmouth, MA	Biofilter
Intermittent Sand Filter	Orenco Systems Inc., Sutherlin, OR	Sand Filter
Bioclere	Aquapoint, New Bedford, MA	Trickling Filter
Waterloo Biofilter	Clearwater Industries, Ipswich, MA	Biofilter
Nitrex	Lombardo and Associates, Newton, MA	Trickling Filter for Nitrogen Removal
PhosRID	Lombardo and Associates, Newton, MA	Trickling Filter for Phosphorus Removal
PuraFlo	Bord na Mona, Greensboro, NC	Peat BioFilter
EcoFlo	Premier Tech, Birmingham, MA	Peat BioFilter
Advantex	Orenco Systems Inc., Sutherlin, OR	Textile BioFilter
SeptiTech	SeptiTech of Massahcusetts, Cohasset, MA	Trickling Filter with Aeration
CFT Ruck	NorthCoast Technologies, Falmouth, MA	Aerobic Ruck Filter

Advantages	Disadvantages
Lower life cycle costs	Longer startup period
Less sensitive to upset	Some types require a larger footprint than active systems
Better for nutrient removal	

Collection Systems

Gravity collection systems are generally the default convention because of the simpler system components and life cycle costs (O&M). Alternative collection technologies such as pressure or vacuum systems can be less expensive to install because of shallower burial depths, particularly for more rural areas where the number of connections is less per linear foot than more densely developed areas. Pressure or vacuum sewers can be installed where pipe slope needs to be installed against surface grades.

<u>Gravity Systems</u>
Gravity systems are comprised of large diameter pipe (greater than 8-inches) with manholes generally spaced at a maximum of 300 feet and at changes in slope and direction. These systems can be the most economical for life cycle cost calculations and best in densely developed locations with grades to support flow. Most gravity systems have centralized pumping stations to overcome adverse grades.

Septic Tank Effluent Gravity or STEG systems use onsite septic tanks to remove solids with effluent flow to gravity sewers, which can be smaller than conventional because of lower solids content. STEG systems are commonly used to sewer areas with existing septic tanks for short distance conveyance.

<u>Pressure Sewers</u>
Pressure sewers are comprised of smaller diameter pipe buried at a depth shallower than gravity systems. These sewers require pumps at individual connections, either grinder pumps that macerate solids or septic tank effluent pumps (STEP) that pump septic tank effluent. Pressure sewers are commonly used in areas of adverse topography or where deeper excavations will be cost prohibitive due to geology or groundwater, or in rural areas with large distances between user connections.

The primary difference between grinder pump systems and STEP systems is the amount of solids conveyed to the collection system. STEP systems rely on septic tanks to remove settleable solids, grease, and grit. Therefore, septic tanks must be pumped regularly. Grinder pumps require slightly more electrical power.

<u>Vacuum systems</u>
Vacuum systems operate under low vacuum instead of gravity or pressure and are comprised of small diameter pipe buried at shallow depths with receiving tanks at individual user connections.

Vacuum systems are typically installed in rural areas to minimize the cost of deeper excavations and in relatively flat terrain because of limited ability to overcome elevation differences. The general convention for vacuum systems is to limit use to areas with less than 20 feet of elevation gain. Larger elevation gains can be achieved by intermediate vacuum pumps and air admittance systems. Odors at the vacuum stations can be an issue that should be considered.

Table 5

Disposal

Pressurized

Technology Name	Manufacturer/Distributor	Type of Process
GeoFlow	J&R Associates, Raynham, Ma	Drip Irrigation
Pressure Distributed SAS	Non-proprietary	Pressurized equal distribution of effluent

Non-Pressurized

Technology Name	Manufacturer/Distributor	Type of Process
BioDiffuser	Advanced Drainage Systems, Hillard, OH	Chamber
Cultec Chambers	Cultec Inc., Brookfield, CT	Chamber
Eljen In-Drain	Eljen Corp., East Hartford, CT	Chamber with Media
Hancor Enviro-Chamber	Hancor, Findlay, OH	Chamber
Infiltrator Chambers	Infiltrator Systems, Old Saybrook, CT	Chamber

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Consulting Engineering

106 Summer Street Somerville MA 02143 617-776-8069 Fax 617-629-2717

January 24, 2003

Helen Priola, PE
Vice President
Woodard & Curran
980 Washington Street, Suite 325
Dedham MA 02026

RE: **Town of Acton**
CWRMP/EIR AWCAC Meeting #3
Public Participation Report

Dear Ms. Priola:

The third meeting of the Acton Wastewater Citizen's Advisory Committee (AWCAC) for the Acton Comprehensive Water Resources Management Plan / Environmental Impact Report (CWRMP/EIR) was held on January 23, 2003.

This Report will discuss comments and questions received during the meeting presentations and the smaller group workshops. All AWCAC worksheets will be filed and maintained for documentation and clarification as required.

The goals of the meeting were to:

- Establish the selection criteria for potential satellite treatment locations and review potential discharge/disposal locations.

- Discuss suggestions, comments and questions received at the October 22, 2002 AWCAC meeting.

General Presentation

The Woodard & Curren team thanked the AWCAC for their thoughtful contributions during both the October Workshop and in follow-up comments and questions. The information received has been incorporated in the study and is providing helpful guidance to the team.

Water demand, water supply, and wastewater disposal needs were reviewed. Based on the compilation of numerous reports and studies, Board of Health records and field data, maps were developed to delineate areas most suitable for on-site solutions.

Similarly, maps were also developed for areas requiring off-site solutions. The evaluation process for selecting potential satellite treatment/disposal locations was reviewed. Cluster systems and disposal options were discussed.

General comments and questions included:

C. There are not many ground water monitors in North Acton.
C. The monitoring wells are 10' deep.
Q. Why are more wells needed?
A. A grant is being sought for more wells to test for additional parameters. Also, by locating wells adjacent to proposed and actual effluents, monitoring of effects, if any, can be scientifically determined.
Q. Will a ground water model be developed?
A. Phase 2 may require a model, based on the Phase 1 findings. If so, the model would focus on specific areas only.
C. SUASCO is developing a ground water modeling program for the entire Assabet watershed for the flow months February-March.
C. Phase 2 and Phase 3 of the CWRMP/EIR will derive from the findings of Phase 1.
Q. What are the upstream Assabet communities doing in order to meet their responsibilities?
A. All 5 are in Phase 2 of the CWRMP.

Group Workshops

The AWCAC members in attendance were divided into two breakout groups for further discussion of the potential satellite treatment locations and discharge/disposal locations. There was sufficient meeting time to allow the two groups to participate in both topic workshops.

Selection Criteria for Potential Satellite Treatment Locations

Indian Village

C. There was a perception that there would have been more lots with needs. Maybe the systems are old and in need of replacement.
A. There are systems that require mounds but don't need innovative / alternative treatment systems.
Q. Does this study address cluster systems?
A. Open and versatile combined options are possible e.g. public and private (this would be a policy decision).
C. Concern about the needs identification re: showing only basic need locations; the costs of replacing systems are not considered

Needs Criteria
C. There is a lack of confidence in the needs criteria because of a sense there should be more needs than identified, e.g. Brucewood Area.

Nonsat Park
C. Investigation of North Action cluster solutions will include this location.

Discharge/Disposal Locations
C. Minimum lot size has not been looked at yet.

C. Assabet criteria are a minimum 5 acres or 5 miles from a wastewater treatment plant (WWTP).

Q. How to define WWTP flows – based on actual or estimated?

C. Homeowners are conserving water e.g. upgrading to low flow toilets.

Q. Do the mapped locations take into account Zone 2 recharge issues?

A. Yes, they have been delineated and for now Zone 2 areas are not being considered likely for discharge due to stringent DEP regulations.

C. The Grace property is a brownfield site.

Q. Can cisterns under athletic fields be used for irrigation?

Q. Does the recharge area have to be open ground? Could the subsurface pavement area of the Auto Auction site be utilized?

C. There has been discussion of recharge along Rt. 2 and in the median of Rt. 2 in Marlborough.

C. Acton Conservation land if often wet. Additionally it can come with limiting stipulations thus preventing consideration for recharge.

C. There are Community Preservation Act (CPA) issues to be coordinated with the CWRMP/EIR results.

C. Only 15% of Acton is septic acceptable.

Q. Should all State and Town land be tested for groundwater and sand/gravel soils?

A. Existing records will be used for the information.

Q. Can there be teaming with some of the existing cluster systems, e.g. Quail Ridge – is that workable?

C. Re-use of storm water and wastewater should be considered.

C. Aesthetics and screening are issues. Size of sand beds affects neighborhoods.

Q. Can treatment plants be located under athletic fields?

A. Yes it can be done and it has been done. It's an education issue.

Q. Will this study address storm water?

A. Phase 2 will consider storm water issues.

Q. Is cluster zoning the answer?

C. The Board of Health supports cluster development because it allows treatment and monitoring.

Q. Where are the quarry sites?

Q. How do we coordinate all the plans and grants and studies?

A. The CWRMP/EIR will document all the various studies and plans.

Q. Are water quality sites tested for phosphorus?

A. Not yet but the 319 Grant for additional parameters and wells will include that testing.

C. 25% of the sites tested for water quality exceed swimming levels for coliform.

C. The Assabet River is the only river/stream allowed for discharge by DEP and EPA re: flow quality and quantity.

Q. Can you oversewer a town that depends on wellwater?

C. A water balance model will be developed.

General Comments

Provide maps in acetate to facilitate overlay of the attribute data.

Bring large-scale maps/display boards for workshop discussion.

Selection of AWCAC Tri-Chairs

A quorum of the Committee was present and a request was made for volunteers to serve as co-chairs. There were three volunteers: Jane Ceraso (Acton Water District), Eric Hilfer (ACES) and Helen Probst (Citizen).

In conjunction with Doug Halley, Health Director and Acton Project Manager for the CWRMP, the Tri-Chairs shall be responsible for:

- Setting the Committee agenda (the meeting agendas are the responsibility of the consultant team);
- Actively participating in group discussions;
- Urging Committee members to participate in meetings and activities as required;
- Representing the Committee in meetings with other groups;
- Dealing with the media and the public at large.

Summary

Meeting #3 provided the opportunity for presentation and discussion of the CWRMP/EIR Phase 1 potential satellite treatment locations and discharge/disposal locations.

The AWCAC participated fully during both the general and workshop formats and contributed valuable information for further study by the consultant team. Inclusion of AWCAC comments and response to AWCAC questions and suggestions will continue to build support for the project recommendations.

Very truly yours,
J LASTOVICA COMPANY

Joan Lastovica, PE
Principal

cc: Doug Halley, Town of Acton
Bob Rafferty, Woodard & Curran

Enc.:
Sign in Sheet
Project Directory (updated)
Meeting Materials:
Agenda
Project Summary, January 23, 2003
CWRMP/EIR Regulatory Process Flow (MEPA) Chart (reissue)
Needs Rating Criteria
Needs Definition
Satellite Location Criteria
Potential Satellite Locations
Acton Water Sampling Locations, existing
Summary of Potential Treatment and Disposal Technologies
List of Acronyms and Phrases

Town of Acton

ACTON WASTEWATER CITIZENS ADVISORY COMMITTEE

Comprehensive Water Resources Management Plan /
Environmental Impact Report
CWRMP/EIR
Thursday 23 January 2003
Time: 7:00 PM
Location: Acton Town Hall, Room 204

Meeting Goals:

To confirm the needs rating of each study area and establish the selection criteria for potential satellite treatment facility locations. Additionally, to discuss suggestions, comments and questions received at the October 22, 2002 AWCAC meeting.

AGENDA

• Welcome	Doug Halley 5 min
• Overview: impacts to water supply, stormwater systems and wastewater management	Bob Rafferty 10 min
• Needs rating	Pio Lombardo 15 min
• Potential satellite locations	Bob Rafferty 15 min
• Break out sessions	Joan Lastovica 40 min
• Q&A	Helen Priola and W&C Team
• Selection of Co-Chairs	JL & AWCAC
• Next Steps	Bob Rafferty
• Evaluate the Meeting	

Attachments:

Project summary informational handout - including figures
Overview of onsite and satellite treatment technologies
List of acronyms and phrases (reissue)

These pipes are buried at a shallower depth than full sewers and run relatively short distances to smaller, less maintenance-intensive treatment and disposal units. These units often use soil absorption fields or effluent recycling rather than discharge the treated wastewater to surface waters.

Package plants are cluster-type systems in size and application but also are similar to larger centralized technologies that receive and treat the entire waste stream, including solids. Alternative collection technologies can be used to convey the wastewater to the plant.

DECENTRALIZED SYSTEMS

A decentralized system is an onsite or cluster wastewater system that is used to treat and dispose of relatively small (or intermediate) volumes of wastewater, generally originating from individual or groups of dwellings and businesses that are located relatively close together. Onsite and cluster systems are commonly used in combination. The choice of a decentralized treatment involves using a combination of treatment technology options, both traditional and innovative, where they are most appropriate in a community. Conventional onsite systems, alternative onsite systems, cluster systems for groups of homes and businesses, and some use of centralized treatment can be included when considering decentralized community wastewater management.

Decentralized systems allow for flexibility in wastewater management. Different parts of the system may be combined into trains or series of processes to meet treatment goals, overcome site conditions, and to address environmental protection requirements. For instance, watertight interceptor (septic) tanks at each home or business may be combined with a watertight collection system running to a treatment facility.

Proponents of decentralized systems commonly cite the following reasons for choosing decentralized over centralized:

1. Saves money by deciding on a preventative strategy (such as assessing conditions and needs in a specific area of a community) to manage wastewater before crisis occurs, thereby avoiding unnecessary cost;
2. Allows homeowners to continue to use their properly functioning septic systems;
3. Enables better watershed maintenance by eliminating the large transfers of water from one watershed to another;
4. May be the most cost-effective treatment strategy for rural communities with sparse populations and;
5. Is appropriate for varying site conditions including ecologically sensitive areas. Treatment methods can be tailored to suit different site conditions.

Sample of Innovative and Emerging Wastewater Infrastructure Technologies

No.	Description	Owner or Developer	Description	Applicability	Development Status
6	Cluster Systems	Multiple	Small package treatment plants that may use combinations of technologies such as vacuum collection for a group of houses with a centralized collection tank and membrane bioreactor treatment. Highly treated effluent may be stored for nonpotable reuse or discharged to a leach field.	Small remote communities with significant distance to closest treatment facility.	Well developed, accepted, and understood, but innovation continues.
7	Membrane Technologies	Zenon, Memcor, Pall	A variety of systems varying greatly in membrane pore size and physical configuration designed to replace tertiary, secondary, and/or primary treatment of preliminary-treated wastewater.	High effluent quality, strict space limitations, capacity upgrades.	Mostly small but a few large installations. Widely understood and accepted in theory, but many practical issues remain such as fouling, long term performance and life and membrane integrity.
8	Semi-Continuous Batch Processes	JetTech, Kruger, CASS	Process variations such as Sequencing Batch Reactors (SBRs) or the Phased Isolation ditch process.	Small footprint automated systems.	Well understood and accepted.

Figure 3: Needs Definition

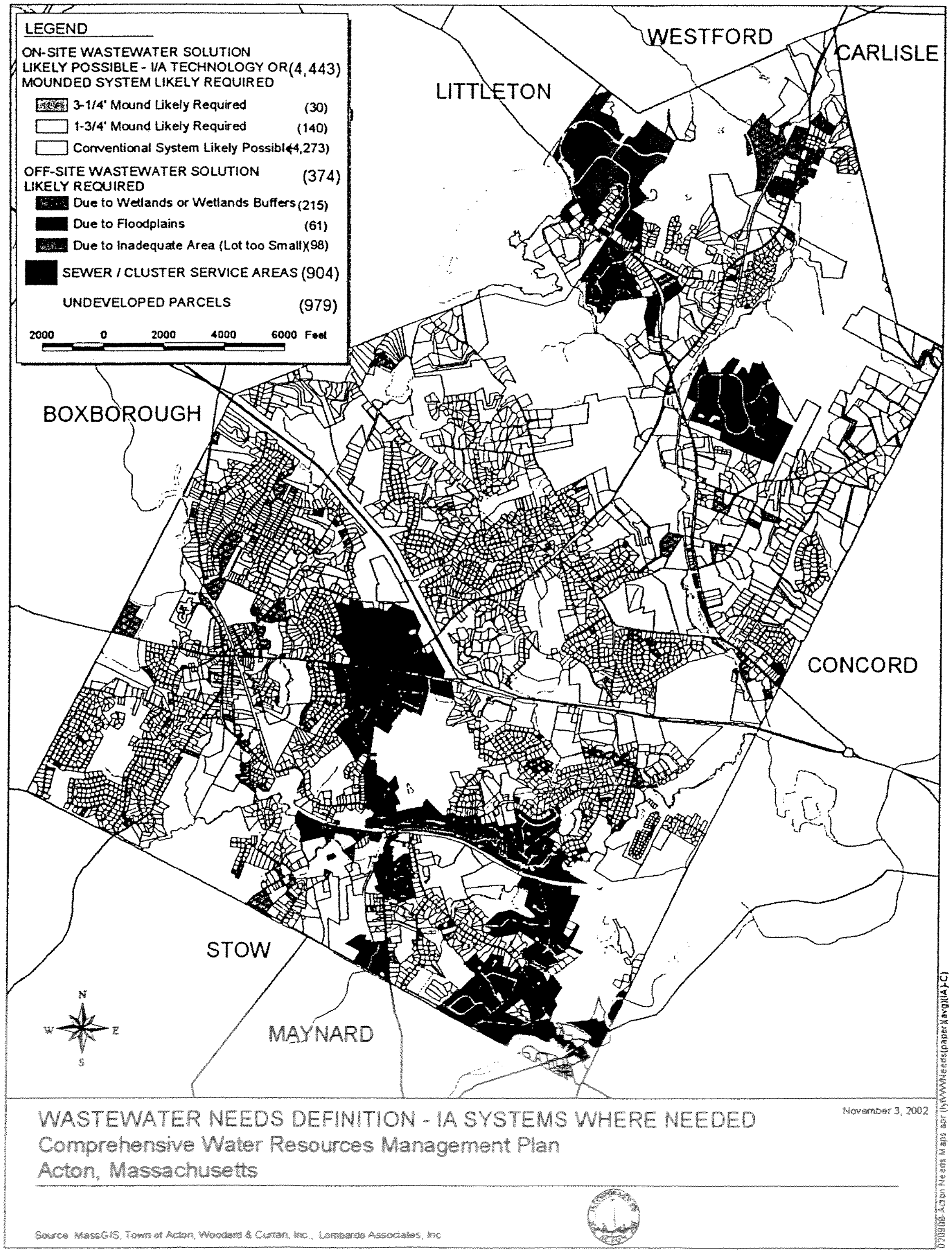
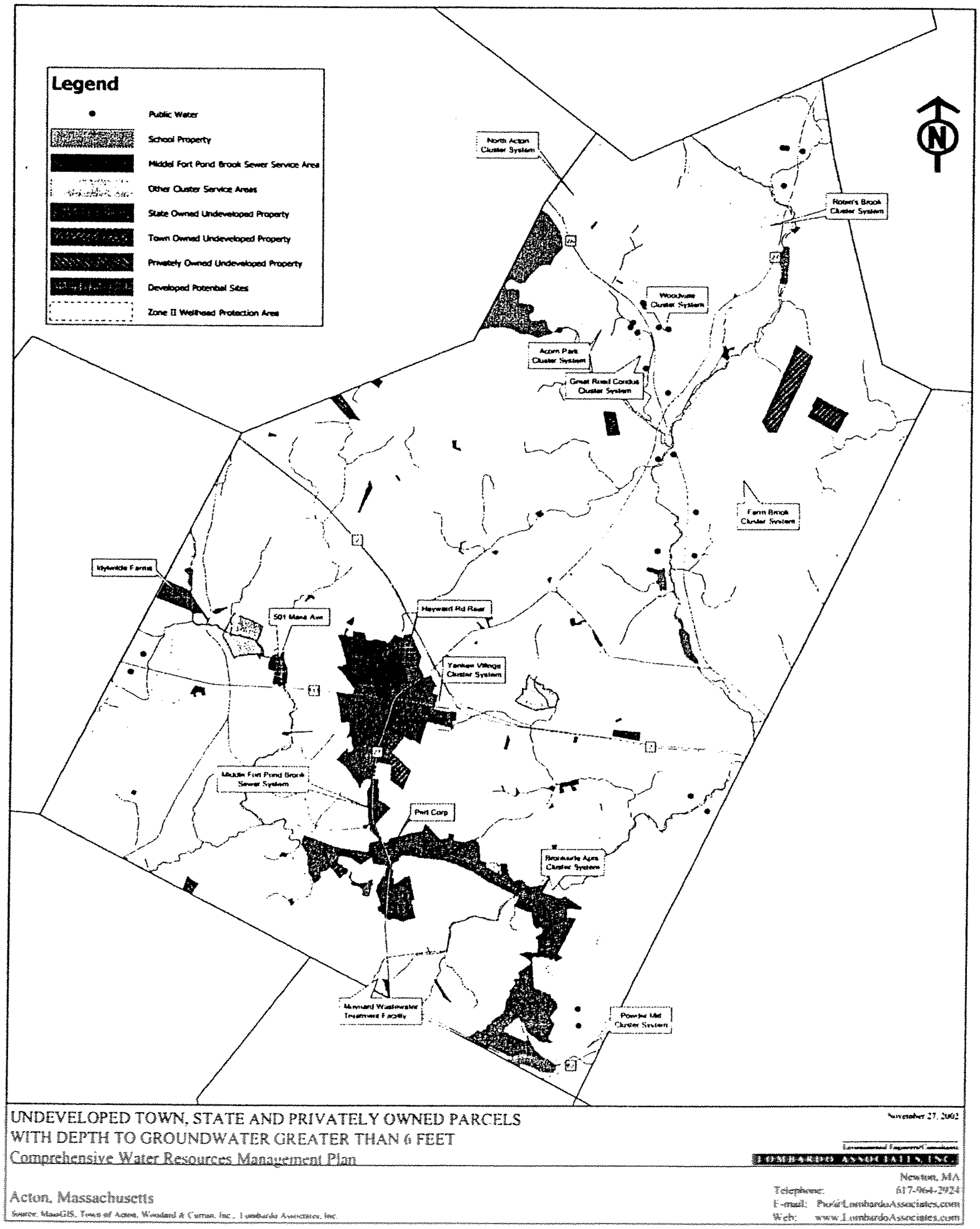


Figure 5: Potential Satellite Locations



These pipes are buried at a shallower depth than full sewers and run relatively short distances to smaller, less maintenance-intensive treatment and disposal units. These units often use soil absorption fields or effluent recycling rather than discharge the treated wastewater to surface waters.

Package plants are cluster-type systems in size and application but also are similar to larger centralized technologies that receive and treat the entire waste stream, including solids. Alternative collection technologies can be used to convey the wastewater to the plant.

DECENTRALIZED SYSTEMS

A decentralized system is an onsite or cluster wastewater system that is used to treat and dispose of relatively small (or intermediate) volumes of wastewater, generally originating from individual or groups of dwellings and businesses that are located relatively close together. Onsite and cluster systems are commonly used in combination. The choice of a decentralized treatment involves using a combination of treatment technology options, both traditional and innovative, where they are most appropriate in a community. Conventional onsite systems, alternative onsite systems, cluster systems for groups of homes and businesses, and some use of centralized treatment can be included when considering decentralized community wastewater management.

Decentralized systems allow for flexibility in wastewater management. Different parts of the system may be combined into trains or series of processes to meet treatment goals, overcome site conditions, and to address environmental protection requirements. For instance, watertight interceptor (septic) tanks at each home or business may be combined with a watertight collection system running to a treatment facility.

Proponents of decentralized systems commonly cite the following reasons for choosing decentralized over centralized:

1. Saves money by deciding on a preventative strategy (such as assessing conditions and needs in a specific area of a community) to manage wastewater before crisis occurs, thereby avoiding unnecessary cost;
2. Allows homeowners to continue to use their properly functioning septic systems;
3. Enables better watershed maintenance by eliminating the large transfers of water from one watershed to another;
4. May be the most cost-effective treatment strategy for rural communities with sparse populations and;
5. Is appropriate for varying site conditions including ecologically sensitive areas. Treatment methods can be tailored to suit different site conditions.

Sample of Innovative and Emerging Wastewater Infrastructure Technologies

No.	Description	Owner or Developer	Description	Applicability	Development Status
1	Individual onsite or cluster systems as alternatives to sewering unsewered communities	Multiple	Alternative collection and conveyance such as STEP or vacuum systems to multiple smaller treatment units may be more desirable than volume collection and conveyance to centralized treatment.	Small systems w/ short conveyance distances. Locations where practical sewer depth is limited by factors such as geology or groundwater.	Well developed, accepted and understood but innovation continues.
2	Vacuum Systems	N/A	Wastewater conveyed to treatment location under low vacuum instead of gravity or pressure. Avoids deep pipes. Limited allowable head loss.	Low head loss systems w/ short conveyance distances. Locations where practical sewer depth is limited by factors such as geology or groundwater.	Well developed, accepted, and understood, but innovation continues.
3	STEP Systems	N/A	Septic Tank Effluent Pumping: Effluent from onsite septic tanks is pumped to treatment via pressurized conveyance system. Avoids deep pipes.	Small systems with short conveyance distances. Locations where practical sewer depth is limited by factors such as geology or groundwater.	Well developed, accepted, and understood, but innovation continues.
4	STEG or small diameter gravity sewer systems	N/A	Septic Tank Effluent Gravity: Effluent from onsite septic tanks flows to gravity sewers, which can be smaller than conventional because of lower solids.	Sewering of areas with existing septic tanks for short distance conveyance.	Well developed, accepted, and understood, but innovation continues.
5	Small Onsite or Cluster Systems	Multiple	Various types and combinations of septic tanks, biofilters, trickling filters, package aeration units, sequencing batch reactors, sand filters, disk filters, wetlands, dosing tanks, leaching chambers, denitrification barriers, irrigation systems and leachfields.	Small remote communities with significant distance to closest treatment facility.	Well developed, accepted, and understood, but innovation continues

Sample of Innovative and Emerging Wastewater Infrastructure Technologies

No.	Description	Owner or Developer	Description	Applicability	Development Status
6	Cluster Systems	Multiple	Small package treatment plants that may use combinations of technologies such as vacuum collection for a group of houses with a centralized collection tank and membrane bioreactor treatment. Highly treated effluent may be stored for nonpotable reuse or discharged to a leach field.	Small remote communities with significant distance to closest treatment facility.	Well developed, accepted, and understood, but innovation continues.
7	Membrane Technologies	Zenon, Memcor, Pall	A variety of systems varying greatly in membrane pore size and physical configuration designed to replace tertiary, secondary, and/or primary treatment of preliminary-treated wastewater.	High effluent quality, strict space limitations, capacity upgrades.	Mostly small but a few large installations. Widely understood and accepted in theory, but many practical issues remain such as fouling, long term performance and life and membrane integrity.
8	Semi-Continuous Batch Processes	JetTech, Kruger, CASS	Process variations such as Sequencing Batch Reactors (SBRs) or the Phased Isolation ditch process.	Small footprint automated systems.	Well understood and accepted.

LIST OF INNOVATIVE/ALTERNATIVE TECHNOLOGIES ACCEPTED BY MADEP

Certified for General Use		
Technology/Model	***Technology Description***	***Approved Use***
Recirculating Sand Filter that complies with Title 5	Sand Filter	BOD_5 and TSS removal Nitrogen reduction
BioDiffuser High Capacity, Standard, and Bio 2 Chambers	Chamber	Alternative SAS in trench, bed or gallery configurations with effluent loading rates specified in 310 CMR 15.242
Intermittent Sand Filter by Orenco	Sand Filter	Equivalent to Conventional Title 5 System
Bioclere 16, 22, 24 and 30 series units	Trickling Filter	Equivalent to Conventional Title 5 System
MicroFAST, High Strength FAST, NitriFAST	Aerobic Treatment	Equivalent to Conventional Title 5 System
CromoglassWWT System CA-5, CA-12, CA-25, CA-30, CA-50, CA-60, CA-100, CA-120 and CA-	Sequencing Batch Reactor	Equivalent to Conventional Title 5 System
Contractor 75, 100, 125 and EZ-24, and Recharger 180, 280, 330, and 400, Contractor Field Drain C and C4	Chamber	Alternative SAS in trench, bed or gallery configurations with effluent loading rates specified in 310 CMR 15.242
Eljen In-Drain Systems: Model Number: Type B43	Alternative SAS	Alternative SAS in trench, bed or gallery configurations with effluent loading rates specified in 310 CMR 15.242
High Capacity and Standard Chambers, Maximizer, 3050, and Equalizer 24	Chamber	Alternative SAS in trench, bed or gallery configurations with effluent loading rates specified in 310 CMR 15.242
Norweco Singular 960	Aerobic Treatment	Equivalent to Conventional Title 5 System
RUCK System (less than 2000 gpd)	Filter	Nitrogen Reduction Equivalent to conventional Title 5 system
Modular FAST, Smith & Loveless	Aerobic Treatment	Equivalent to conventional Title 5 System

BOD = Biochemical Oxygen Demand
TSS = Total Dissolved Solids
CMR = Code of Massachusetts Regulations
SAS = Soil Absorption System

LIST OF INNOVATIVE/ALTERNATIVE TECHNOLOGIES ACCEPTED BY MADEP

Certified Under General Use Under Department Review		**Proposed Use**
MicroFAST, High Strength FAST, NitriFAST	Aerobic Treatment	BOD_5 and TSS removal Nitrogen reduction
Norweco Singulair 960	Aerobic Treatment	BOD_5 and TSS removal Nitrogen reduction
Waterloo Biofilter	Trickling Filter	Equivalent to conventional Title 5 System
Infiltration chambers	Chamber	Alternative SAS in trench, bed, or gallery configurations with a 40% reduction of the effluent loading rates specified in 310 CMR 15.242
Certified Under Provisional Use		**Approved Use**
Amphidrome Process	Sequencing Batch Reactor	BOD_5 and TSS removal Nitrogen reduction
Krofta Compact Clarifier (KCC)	Flotation and Sand Filtration	BOD_5 and TSS removal Nitrogen reduction
MicroSeptec EnviroServer	Aerobic Treatment	BOD_5 and TSS removal Nitrogen reduction
Norweco Singulair	Aerobic Treatment	BOD_5 and TSS removal Nitrogen reduction
Nitrex	Filter	Nitrogen Reduction
Waterloo Biofilter	Trickling Filter	Increased loading rates and reduced separation to groundwater

1. General Use: Provides a level of environmental protection at least equivalent to that of a conventional Title 5 system.
2. Provisional Use: This system can be installed in upgrade situations or for new construction where a system in compliance with Title 5 could be built.

ACTON CWRMP / EIR
List of Acronyms and Phrases

CWRMP	Comprehensive Water Resources Management Plan
DEP	Massachusetts Department of Environmental Protection
DEM	Massachusetts Department of Environmental Management
EIR	State agency mandated Environmental Impact Report
EOEA	Massachusetts Executive Office of Environmental Affairs
ENF	State agency mandated Environmental Notification Form
GIS	Geographic Information System utilizing computer-generated data to produce maps and other graphic presentation of data
MEPA	Massachusetts Environmental Policy Act and the MEPA Unit state agency staff
NHESP	Natural Heritage and Endangered Species Program of the DEM
Secretary's Certificate	EOEA Cabinet Secretary Robert Durand issues certificate with agency findings as part of the MEPA project review process
SRF	Massachusetts DEP State Revolving Loan Fund for low interest loans made on wastewater projects
USGS	United States Geologic Survey prepares topographic maps showing topography, surface elevations, and man-made and natural features

Project Review and Advisory Groups

AWAC	Acton Wastewater Action Committee
AWCAC (CAC)	Acton Wastewater Citizens Advisory Committee
AWTAC (TAC)	Acton Wastewater Technical Advisory Committee

Regional and Watershed Associations

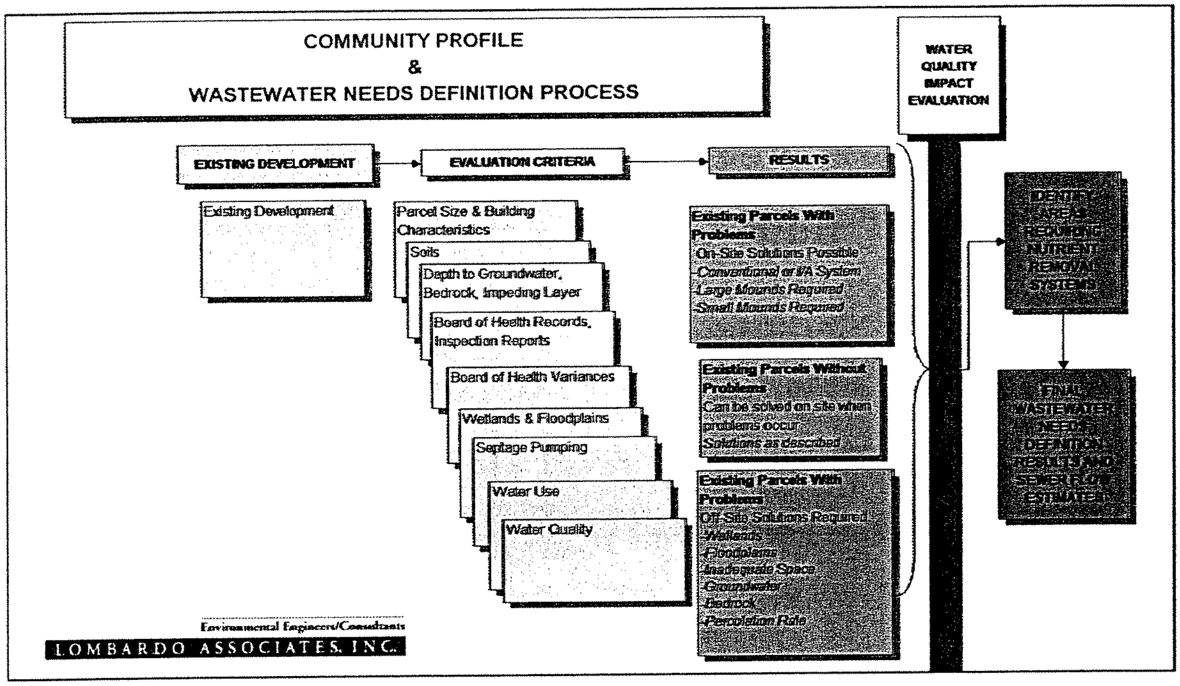
Assabet Consortium	Group of towns with existing wastewater treatment plants that discharge to the Assabet River. The towns are preparing a wastewater management plan for their discharges
OAR	Organization for the Assabet River
SuAsCo	Sudbury, Assabet, Concord Rivers Watershed

Wastewater Treatment Systems

On-site System	Individual homeowner septic system
Cluster System	Small treatment system serving a cluster of homes
Satellite System	A de-centralized treatment system serving area-wide homes
Centralized System	Centralized wastewater treatment plant serving town-wide homes

Figure 2: Needs Rating Criteria

ACTON DECENTRALIZED WASTEWATER MANAGEMENT NEEDS DEFINITION PROCESS FLOW CHART



Town of Acton

ACTON WASTEWATER CITIZENS ADVISORY COMMITTEE

Comprehensive Water Resources Management Plan /
Environmental Impact Report
CWRMP/EIR
Tuesday October 22, 2002
Time: 7:00 PM
Location: Town Hall, Room 126

Meeting Goals:

To discuss the existing conditions, study areas and proposed fieldwork for the next phase of the project. Additionally, to review for completeness the list of needs criteria that will be used to guide future decisions.

AGENDA

• Welcome	Doug Halley 5 min
• Introductions & Icebreaker	Joan Lastovica 10 min
• Committee mission & ground rules update	Joan Lastovica 5 min
• Project Overview: existing conditions, study areas & proposed fieldwork	Bob Rafferty 10 min
• Needs criteria	Pio Lombardo 10 min
• Break out session	Joan Lastovica 20 min
• Q&A	Helen Priola and W&C Team
• Selection of Co-Chairs	JL & AWCAC
• Next Steps	Bob Rafferty
• Evaluate the Meeting	

Attachments:

Project narrative
AWCAC Agenda and meeting goals, 10/22/02
AWCAC mission
Acton water sampling locations, existing
Subsurface water sampling locations, proposed
Wastewater districts, proposed
Needs criteria process
ENF
MEPA Chart (reissue)
Glossary (reissue)
AWCAC Directory

J LASTOVICA CO
Consulting Engineering

106 Summer Street Somerville MA 02143 617-776-8069 Fax 617-629-2717

7 November 2002

Helen Priola, PE
Vice President
Woodard & Curran
980 Washington Street, Suite 325
Dedham MA 02026

RE: **Town of Acton**
CWRMP/EIR AWCAC Meeting #2
Public Participation Report

Dear Ms. Priola:

The second meeting of the Acton Wastewater Citizen's Advisory Committee (AWCAC) for the Acton Comprehensive Water Resources Management Plan / Environmental Impact Report (CWRMP/EIR) was held on 22 October 2002.

This Public Participation Report will discuss comments and questions received during the meeting presentations and the small group workshops. All AWCAC worksheets will be filed and maintained for documentation and clarification if required.

The stated purpose of the meeting was to:
Confirm each Study Area and establish the level of effort to characterize each area through field investigations, especially for non-wastewater concerns such as neighborhood character, historical significance, natural features, etc.

Establish the objective criteria by which each Area's wastewater needs will be assessed and the relative ranking of the criteria.

What AWCAC members want from the meeting?

Information update

To listen

Sewerage for Powder Mill Plaza

Clear understanding: sewers or not

River and tributaries: protection re: loads and flow

Review information to date and discuss with the group

Financial impact on private plants

Home owner-voicing support of sewerage

General Presentation

The Woodard & Curren team presented the initial findings and assessment of current environmental conditions in and around Acton. Water demand, water supply, stormwater systems, and wastewater management and needs were reviewed. Field work in the form of a "windshield survey" of significant Town natural resources and other special conditions will complete the initial assessment.

Existing Board of Health records were converted into a GIS database for analysis of wastewater needs and used in conjunction with other Town reports and projects to provide the best available data for the wastewater needs analysis. This approach allowed for a high level of confidence in the analytical results. Further, the data was comprehensive and no further sampling locations or tests are recommended at this time.

A general discussion of existing conditions included:

Q. By removing phosphorus can you discharge directly to the river? A. The River is so polluted existing plants may have to remove loading.

Q. Is the affect of the new golf course factored into the study? A. The golf course is two years away; the CWRMP/EIR project will be completed. The NPDES permit will be the mechanism that requires stormwater rules and regulations for the new course.

C. The High School and Jr. High School were big areas of concern; they don't show on the maps.

Q. Who will be the regulators for the Town regarding rules and regulations?

A general discussion of needs criteria included:

Q. Can you give an example of alternative pretreatment systems?

Q. What is NRCS data, regarding it's predictive use for septic systems?

Q. How confident can we be in NRCS data?

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Consulting Engineering

106 Summer Street Somerville MA 02143 617-776-8069 Fax 617-629-2717

Q. When was soil testing done? A. 1976
C. Are you using percolation and soils to refine groundwater data?
C. I would like to see a map that overlies existing sewer system re: red/yellow/etc. highlighted areas.

Group Workshops

The AWCAC members in attendance were divided into two breakout groups for further discussion of the study areas/proposed fieldwork and the needs criteria. Meeting time was extended to allow the two groups to participate in both topic workshops.

Study Areas And Field Work

Discussion of Storm Drain Map
Q. Town takes properties (tax foreclosure) and uses for areas of infiltration
C. Open space land, Town and State owned, ground water recharge
Q. Phosphorus reductions at plant? A. Yes, 0.2 mg/L P
C. Fecal to E-coli change (std.)
C. Recently dredged Ice Pond (near Horseshoe)
Q. Have aquifer maps factored into study? A. Yes, part of GW contours map.
C. USGS GW modeling – correlate water withdrawal with aquatic habitat
C. Testing for additional parameter: hydrocarbons, pesticides, etc.
C. Residential survey
C. Microtox – toxicity screening test

Fecal Count
C. 10,000 colonies/ml – upper limit for indication of illicit discharge; may save money in long run as it indicates illicit connections

Field Surveys
C. Windshield survey, information on specific neighborhoods
C. Concerns over sewer and growth, e.g. sewer built-out areas (i.e. Indian Village). Key factor, careful of undeveloped areas, promoting growth
C. Building off existing system
C. Attitude toward sewers has changed; people are starting to realize costs of individual system replacement
C. Partner with private entity for small satellite system
C. Joint systems between two or more homes
C. Aggressive betterment program

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C. Developers have shared systems, private systems, and condos
C. Powder Mill has a NEED for sewer
C. Discharge into well field across street from plant; expand plant
C. Failing systems are slowly discharging over time. Looking at 200 colonies/ml fecal over time to indicate illicit discharge
C. Difficult to maintain or enforce maintaining private systems

Needs Criteria

C. Need to assess existing private WWTP for their future operation and connection. Can existing systems solve problem onsite?

C. Undeveloped lots (white spaces) not included in needs map, but can become buildable in future: should these be included in needs areas? Issues of abutter undeveloped vs. "area" undeveloped.

C. Stimulating growth through sewer systems can raise impacts on water supply. Balancing these competing functions – master planning can then identify sites needed to purchase to preserve recharge.

C. Existing private WWTP systems with problems and or end of life age – where can they connect?

C. Issue of expanding Town WWTP via new disposal areas (river or Zone II)

C. "Red" sites look reasonable.

C. Issue of onsite suitable lots may be significant cost to "public" via individual homeowners repairing their individual system vs. "Town-wide public" via communal systems. The total costs of both measures should be compared. Need homeowner survey of actual onsite system costs.

Q. Ledge not fully delineated; does this require more detailed assessment?

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The consensus of the AWCAC was that all issues had been identified in the group workshops, and additional full group discussion was unnecessary. Due to lack of a quorum of AWCAC members, the selection of co-chairs of the committee was deferred.

Group Evaluation
Attendees were asked to evaluate the meeting to assist the consultant team in preparation for the next session. Specifically requested was feedback on:

Things That Went Well
The Study is on the right track
The results are scientific

Ideas for Improvement
More AWCAC participants attending
Thursday evening meetings
Notify of date now with a snow date (if Jan/Feb)
Post the Draft Report on the Town website

SUMMARY

Meeting #2 provided the opportunity for presentation and discussion of the Draft Report existing conditions, field study and needs analysis. The AWCAC participated fully during both the general and workshop format.

Inclusion of AWCAC comments and response to AWCAC questions and suggestions will continue to build support for the project recommendations.

Very truly yours,
J LASTOVICA COMPANY

Joan Lastovica, P.E.
Principal

cc: Doug Halley, Town of Acton

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Enc.: Meeting handouts:
Agenda
Sign in Sheet
Project Directory (updated)
Project Narrative
AWCAC Mission
Acton water sampling locations, existing
Subsurface water sampling locations, proposed
Wastewater districts, proposed
Needs criteria process
ENF
CWRMP/EIR Regulatory Process Flow (MEPA) Chart (reissue)
List of Acronyms & Phrases (reissue)
Ground Rules (reissue)

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GROUND RULES

The ground rules, listed by the AWCAC at the first meeting, were posted.

- Be concise
- Be prepared to listen and willing to speak
- Be prepared – do your homework
- Keep an open mind
- Be respectful of other people
- Good attendance
- Agenda in advance
- Timeliness
- Cover material - with realistic agenda
- Don't rehash decision made by consensus
- Have fun

ACTON WASTEWATER CITIZENS ADVISORY COMMITTEE
AWCAC
COMPREHENSIVE WATER RESOURCES MANAGEMENT PLAN / ENVIRONMENTAL IMPACT REPORT
(CWRMP/EIR)

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